SKEPTICAL INQUIRER

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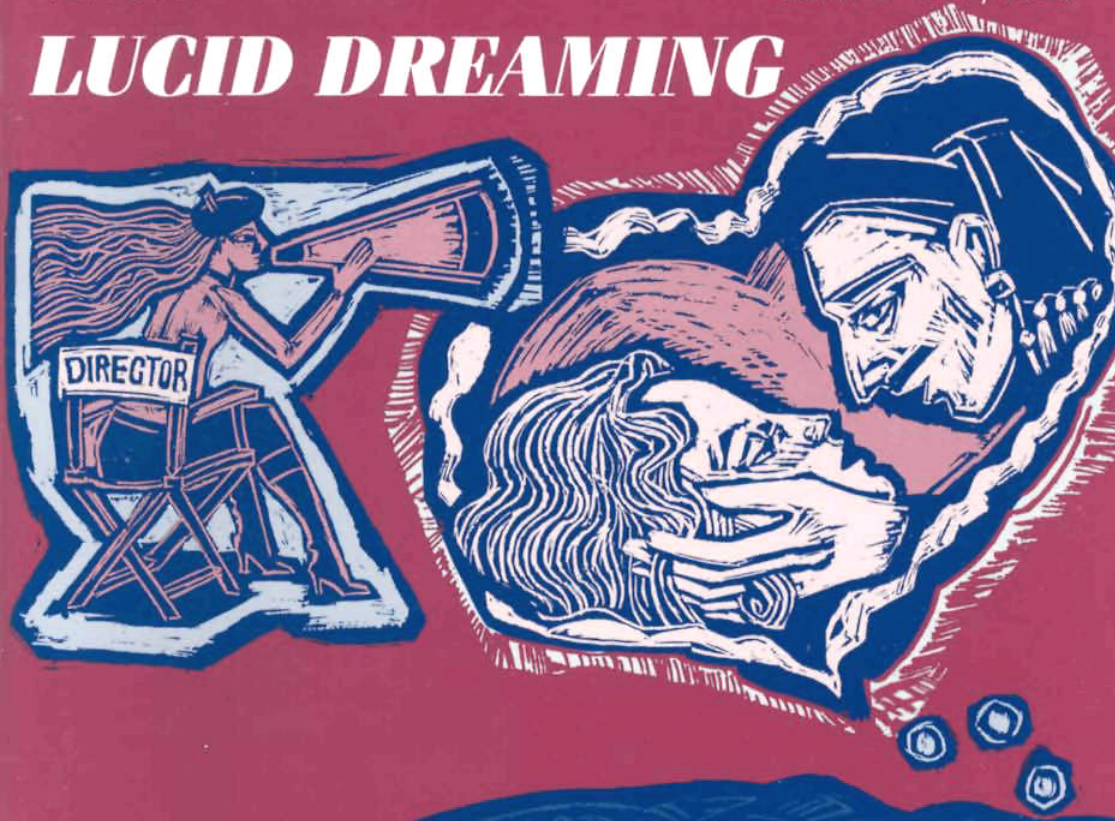
LUCID DREAMING



Nature Faking in the Humanities
Coincidences / True Believers
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Published by the Committee for the Scientific Investigation of Claims of the Paranormal

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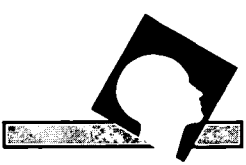

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News and Comment

New Age Books by Any Other Name . . .

The book-publishing business has long been an accomplice in the spread of pseudoscience, quackery, and pernicious nonsense. And in contrast to the ephemeral nature of other media products, such as television and radio programs or newspapers and magazine articles, books have solidity and permanence. This is true even of paperback books, whose relatively low cost and small size make them attractive to buy and read, then swap or resell. A glance at the "Occult" section in any used-book store reveals that claptrap in book form can live for decades. Consider, as just one example out of many, Bantam Books, paperback publisher of such pseudoscientific classics as Erich von Däniken's *Chariots of the Gods?* (1970), Andrew Tomas's *We Are Not the First* (1971), and Frank Edwards's *Flying Saucers—Serious Business* (1966)—all still widely available in used-book stores.

Many publishers sit squarely atop the proverbial fence, publishing information and misinformation with apparent impartiality. One such is Vintage, a paperback publisher that is part of Random House. In past years Vintage has published both Phil Klass's *UFOs Explained* (1976) and John Gribbin and Stephen Plagemann's *The Jupiter Effect* (1975; rev. ed., 1976). And during the same period Bantam published the pseudoscience titles listed above, it also issued, under the imprint of New York Times Books, the paperback edition of the Condon Commission report, *Scientific Study of Unidentified Flying Objects.* Few large paperback publishers have managed to steer clear of pseudoscience; one exception appears to be W. W. Norton, which has stayed on the skeptical side of pseudoscience with its "scientific debate" books: *UFOs: A Scientific Debate* (1974), *Scientists Confront Velikovsky* (1979), and *Scientists Confront Creationism* (1983).

In the past, some small publishers have dedicated themselves to publishing books on occult or "metaphysical" topics. In recent years, with the rise of the New Age phenomenon, some have devoted themselves entirely to books on New Age topics. A prominent example is the West Coast publisher Jeremy Tarcher. Larger

companies have established special imprints to identify their New Age books. Here again, Bantam furnishes an example: Over the past several years New Agers have come to recognize the "rainbow people" logo of Bantam New Age Books, a line whose motto is "A Search for Meaning, Growth and Change."

Keeping track of the publishing industry's interest in pseudoscience offers a glimpse into the changing interests of the American reading public, from UFOs to the "new physics," since publishers sail with the prevailing winds of popular culture. At the same time, however, publishers influence cultural trends. When publishers began identifying some of their titles as "New Age," many bookstores dropped their traditional "occult" section in favor of one labeled "New Age." These developments both paralleled and undoubtedly influenced the growing public awareness of the amorphous set of beliefs that compose New Age thinking.

After several years of promoting books with the "New Age" tag, publishers have now begun to drop the label, finding that it no longer helps sell books. A recent feature in *Publishers Weekly* (December 7, 1990), headlined "The Flight from 'New Age,' " explains that the change is in large part due to the desire of publishers to present New Age titles as part of the scientific mainstream, rather than segregating them as a special interest. Bantam, for example, has begun to leave off the "New Age" label from some of its books while retaining the rainbow people logo and motto. Further, it has spun off from its New Age imprint a line called "New Sciences." Bantam's stated aim is to capture the science-minded audience that has made bestsellers of books like Stephen Hawking's *Brief History of Time.*

Shambhala, best known for books on mysticism and Eastern religions, now directs some of its titles to the science sections of bookstores. Humanics New Age—as its name indicates, a specialty New Age publisher—is seeking another label for its books. Company president Robert Hall says he has never liked the term *New Age* because it "implies crystals, candles, channeling." Most of the authors whose books are published by Humanics are Ph.D.'s, Hall notes.

Stocked on science shelves, New Age titles find more readers. For one thing, people who might be embarrassed to be seen browsing in a New Age or occult section of a bookstore are often delighted to be seen thumbing through books on the science or philosophy shelves.

For bookstores, the New Age category was a way to group books from several subject areas. Many titles came from the old occult section, but others would formerly have been classed in psychology, philosophy, self-help, or religion sections. Now it appears that such books are migrating back to these categories. As one publisher puts it, "I see the category itself splintering back into its basic disciplines: the occult, personal growth, Eastern religions, philosophy." Self-identified New Age publisher Jeremy Tarcher now describes his company's books as covering child-rearing, personal health, business, Jungian psychoanalysis, men's consciousness, and sexuality. "All are now subjects one can look at with a New Age perspective," he explains.

By dropping the New Age tag, publishers are not only attempting to "mainstream" their titles; they believe they are responding to a shift in public interest from fads, such as crystals and channeling, to more serious spiritual quests. Prominent New Age writer Marilyn Ferguson, author of *The*

New Age Around the World

Not surprisingly, the United States and other English-speaking countries represent the world's largest market for New Age and metaphysical books, according to *Publishers Weekly* (December 7, 1990). In Canada, native cultures and the environment are the focus of New Age interests; in England, emphasis falls on the Arthurian tradition. Looking farther afield, the dubious honor of being the second-largest market for New Age ideas is held by Germany. Subject areas favored by German readers include anthroposophy, inner transformation, dreams, death, and angelic messages, as well as self-help. New Age books for children are also popular. Here's a brief rundown of New Age/metaphysical interests in Europe, at least as publishers see them.

Sweden: Similar to Germany, but a smaller market. Popular topics include transpersonal psychology, personal development, intuitional development, shamanism.

Holland: No fewer than eight New Age magazines are published in this small country, covering mysticism (Eastern and Western), meditation, art, religion, martial arts, computers, health and environmental issues, homeopathy, and transpersonal psychology from a New Age perspective.

France: Metaphysical material is popular. In addition, one French publisher has launched a series of "New Age fiction."

Italy: Favorite subjects are astrology, yoga, massage, natural medicine, and healing.

Greece: Some 30 to 40 publishers in Greece publish esoteric material, on subjects including astrology, yoga, acupuncture, homeopathy, massage, Tarot, Zen, I Ching, and mythology. Greece has at least one specialty New Age bookstore, Pyrinos Kosmos, or Fiery World.

Countries all over the world purchase rights to publish New Age/metaphysical books of American origin; at the same time, *Publishers Weekly* notes, the "rich international heritage" of such material in this country, which includes such luminaries as H. P. Blavatsky (Russian/American), G. I. Gurdjieff (Greek/Armenian/Russian), Ouspensky (Russian), Teilhard de Chardin (French), Paramahansas Yogananda (Indian), Alice Bailey (British), Rudolf Steiner (German), Carl Jung (Austrian), Reshad Feld (British), Elizabeth Haich (German), and Dane Rudhyar (French). Of course many more names could be added to this brief list.

—*L.A.S.*

Aquarian Conspiracy, uses the term "New Age activism" to describe the current trend. "Ram Dass and others have shown *why* individuals and society need a new direction. We're starting to see books about *how* [to achieve it]," she says. As an example of a New Age activist book, Ferguson cites *The Simple Act of Planting a Tree* by Andy and Katy Lipkis, published

by Jeremy Tarcher.

One reason for the growing interest in the practical aspect of spiritual pursuits may be the current emphasis on the individual's role in protecting the environment: New Age thought has persistently focused on the importance of the individual in changing both oneself and the world. Another factor may be the economic recession, since hard times force many people to concentrate on pragmatic concerns.

Even if bookstores no longer group books in a section labeled "New Age," many of the same titles are dispersed in other sections. And if channeling and crystals are out, other equally questionable subjects will replace them. According to publishers, books on divination systems, such as Tarot, are popular right now, along with spiritually oriented books on environmentalism and indigenous cultures, the men's movement (led by Robert Bly's latest, *Iron John*), feminist spirituality (the so-called goddess movement), Jungian ideas, and Eastern philosophy as it relates to American business. Once again, in their eternal quest to sell books, publishers not only cater to popular taste but also influence it.

—*Lys Ann Shore*

Lys Ann Shore is a SKEPTICAL INQUIRER *contributing editor.*

Nation's Mathematicians Guilty of 'Innumeracy'

"When E. F. Hutton talks, people listen." Who can forget those indelible television commercials, in which the world came to a virtual standstill, focusing its sole attention upon that oracle of financial wisdom (that is, before Hutton went belly-up)? As a rule, when Marilyn vos Savant speaks in her weekly *Parade* magazine column, "Ask Marilyn" (her byline notes that she "is listed in the 'Guinness Book of World Records Hall of Fame' for 'Highest IQ' "), people listen. In the instance discussed below, however, they may have been listening, but they weren't believing—although they should have been.

The following "brain teaser" was submitted to vos Savant last year by a reader:

> Suppose you're on a game show, and you're given a choice of three doors. Behind one door is a car; behind the others, goats. You pick a door—say, No. 1—and the host, who knows what's behind the doors, opens another door—say, No. 3—which has a goat. He then says to you, "Do you want to pick door No. 2?" Is it to your advantage to switch your choice?

In her column, vos Savant answered, "Yes, you should switch." She explained that, obviously, there is a 1:3 chance that the original choice, door No. 1, is the correct one. Therefore, there must be a 2:3 chance that, since door No. 3 has now been eliminated as a possibility, the car is behind door No. 2. For those readers requiring further explanation, she illustrated the point with this example: "Suppose there are a *million* doors, and you pick door No. 1. Then the host, who knows what's behind the doors and will always avoid the one with the prize, opens them all except door No. 777,777. You'd switch to that door pretty fast, wouldn't you?"

Apparently not, based upon the chastising letters vos Savant received

from those who ought to know better—mathematicians who share CSICOP's dismay over the nation's state of "innumeracy." In a follow-up column last December, vos Savant published some examples:

> "I'm very concerned with the general public's lack of mathematical skills. Please help by confessing your error. . . ."—Robert Sachs, Ph.D., George Mason University
>
> "You blew it, and you blew it big! . . . You seem to have difficulty grasping the basic principle at work here. . . . There is enough mathematical illiteracy in this country, and we don't need the world's highest IQ propagating more. Shame!"—Scott Smith, Ph.D., University of Florida
>
> "Your answer to the question is in error. But if it is any consolation, many of my colleagues have also been stumped by this problem."—Barry Pasternack, Ph.D., California Faculty Association

In an effort to even more clearly illustrate the correctness of her original answer, vos Savant invoked the classic "shell game," in which a pea is placed beneath one of three shells. The gambler/victim is asked to place a finger on one shell, and the "house" then lifts away one of the others, leaving behind two shells, one of which covers the pea. As vos Savant explained, by removing one empty shell "we've learned nothing to allow us to revise the odds on the shell under your finger." She then presented a "probability grid" containing all possible permutations of the game, showing how "when you don't switch, you win one in three times and lose two in three. Try it yourself." (The "shell game" is illegal precisely because, despite the appearance of 50:50 odds, they actually favor the "house" 2:1.)

Ask Marilyn™

BY MARILYN VOS SAVANT

Photo by Eddie Adams

One might have thought, or at least hoped, that this second column would have settled the issue. But in her February 17, 1991, column, we were treated to the following:

> "I am in shock that after being corrected by at least three mathematicians, you still do not see your mistake."—Kent Ford, Dickinson State University
>
> ". . . Albert Einstein earned a dearer place in the hearts of the people after he admitted his errors."—Frank Rose, Ph.D., University of Michigan
>
> ". . . Your answer is clearly at odds with the truth."—James Rauff, Ph.D., Millikin University
>
> "May I suggest that you obtain and refer to a standard textbook on probability. . . ."—Charles Reid, Ph.D., University of Florida

"... I am sure you will receive many letters from high school and college students. Perhaps you should keep a few addresses for help with future columns."—W. Robert Smith, Ph.D., Georgia State University

"You are utterly incorrect.... How many irate mathematicians are needed to get you to change your mind?"—E. Ray Bobo, Ph.D., Georgetown University

"... If all those Ph.D.s were wrong, the country would be in very serious trouble."—Everett Harman, Ph.D., U.S. Army Research Institute

"Maybe women look at math problems differently than men."—Don Edwards, Sunriver, Oregon

"When reality clashes so violently with intuition," vos Savant responded, "people are shaken." In once again addressing the question "Should you switch?" she apparently decided this time to invoke a more universally accepted phenomenon. Suppose, she says, after choosing door No. 1, and having the host step in and "give a clue" by opening one of the two remaining doors, "at that point . . . a UFO settles down onto the stage. A little green woman emerges, and the host asks her to point to one of the two unopened doors. The chances that *she'll* randomly choose the one with the prize are 1:2 [as opposed to 2:3 chances of the original contestant winning by switching]. But that's because she lacks the advantage the original contestant had—the help of the host. . . . If the prize is behind No. 2, the host shows you No. 3; and if the prize is behind No. 3, the host shows you No. 2. So when you switch, you win if the prize is behind No. 2 *or* No. 3. *You win either way!* But if you *don't* switch, you win only if the prize is behind door No. 1."

And if *that* isn't sufficiently clear, vos Savant asks the nation's math teachers to perform 400 trials of the "shell game" with their students, the first 200 with *no* "switching," followed by 200 "switches," with random selections to be made by rolling a die until a 1, 2, or 3 comes up. Even if no "little green woman" arrives in a UFO to supervise the trials, I predict a few red faces on those math instructors who will not see the light until the results of the trials are tallied.

—*Gary P. Posner*

(Readers are also referred to Innumeracy: Mathematical Illiteracy and Its Consequences, *by John Paulos, Hill and Wang, N.Y., 1988.)*

Dr. Posner, an internist in St. Petersburg, Florida, is a member of Mensa, and founder of the Tampa Bay Skeptics.

Editor's Postscript:

Mathematicians at the Massachusetts Institute of Technology came to vos Savant's defense. "You are indeed correct," wrote Seth Kalson, Ph.D. "My colleagues at work had a ball with this problem, and I dare say that most of them—including me at first—thought you were wrong!" The same thing happened with mathematicians at the University of Oregon. After 92 percent of the letters vos Savant received expressed belief she was wrong, Frank Anderson, head of the University of Oregon's Mathematics Department, said, "Consensus is not the issue. She is 100 percent right."

SKEPTICAL INQUIRER reader Lenna Mahoney, an atmospheric scientist in Richland, Washington, writes that she too at first thought the answer was obvious. "It wasn't till I started writing a computer program to simulate the set of choices that I realized I was wrong. You have more infor-

mation on the second choice because the emcee knew which curtain had the car and took that into account when he chose which curtain to open; after all, he couldn't show the car without prematurely ending the game." Mahoney says not one of the several technical professionals, including Ph.D. scientists, of her acquaintance who saw the thought problem got the right answer by immediate intuition. And several came up with "very fanciful ways of 'proving' that the odds were even." One "refused to accept the results of my computer program," arguing that "in short, if the program didn't agree with him it was wrong."

"This circular rationale illustrates what I find fascinating about the problem," says Mahoney. "Not even experts have the correct intuition, the incorrect answer is infinitely rationalizable using technical-type rhetoric, and everyone thinks the solution is obvious. The basic subtle fallacy seems to be the idea that because there is a choice of two unknowns and only one is right the odds must be even. The point that intuition ignores is that there were originally three choices, from which the two-choice set was derived. It is remarkable that so many technical Ph.D.s should miss that point."—*K.F.*

The Mims Affair At Scientific American

In May 1988, writer Forrest Mims made an unsolicited presentation to *Scientific American* to take over its Amateur Scientist column. He envisioned a column devoted to hands-on tinkering, in the style of that column's longtime writer C. L. (Red) Stong, rather than the "physics of everyday life" format of Jearl Walker, who was writing it at the time. The editors were committed to a major review of the style of the magazine, and Walker was already contemplating giving up the column to pursue other interests, so serious attention was paid to Mims's proposals.

On July 27, 1989, Mims was invited to come to New York from his home in Texas to discuss the column with the magazine's editor, Jonathan Piel, and other senior staff. On August 7, Mims visited the offices of *Scientific American*. During the morning his proposals were met with universal praise from the editorial staff. Shortly before lunch, Mims had a brief conversation with Piel. Mims was asked about his other writing, and he mentioned that, in addition to his

extensive writing on technology, he also wrote for nontechnical journals, including some Christian magazines. Piel was disquieted by this and asked Mims his belief on evolution and creationism. Mims replied that he rejected evolution. Piel quietly informed several of his staff, and the afternoon proceeded with no further mention of the subject.

Piel agonized over his dilemma for several weeks. Although convinced that Mims was a worthy columnist, he was worried that selecting Mims as a technology writer could result in the appearance that *Scientfic American* endorsed his decidedly unscientific views of biology. Some of his staff felt that there was no problem, while others shared Piel's reservations. In the meantime, Mims began a series of frequent telephone calls to *Scientific American*, and before long had spoken at length with nearly every member of the staff. Some of the exchanges were less than genteel. One staffer asked Mims if he were a fundamentalist Christian. (Mims describes himself as an Evangelical.) Another staffer asked his views on abortion and made reference to those who bombed abortion clinics. Mims was asked to agree not to use *Scientific American*'s name in association with any article on creationism and to discourage anyone else from doing so. On August 30, 1989, *Scientific American* assigned a trial column to Mims for a fee of $2,000, and two topics were suggested. Two columns were submitted on September 23, 1989, and a third column sometime later.

All of the staff finally agreed that Mims should write the column. On October 4, 1989, Piel telephoned Mims, who surreptitiously taped the conversation. Piel again praised the columns, and again expressed his serious reservations that Mims's beliefs might reflect on the magazine. Piel apparently agreed to buy the three articles, saying that this would give Jearl Walker a chance at a vacation. Apparently over the next few weeks Piel changed his mind. On October 30, he returned the columns with payment for only two of them, and denied that he had ever agreed to purchase the columns. Mims then wrote a letter to Claus-Gerhard Firchow, then president of *Scientific American*, and an agreement was reached on December 13, 1989. The magazine agreed to pay for the third article and publish all three. Mims signed a release precluding civil suits for employment discrimination that may have occurred prior to the signing of the release. The three articles appeared in the June, August, and October 1990 issues, respectively.

Jearl Walker finally did resign as the Amateur Scientist columnist, and Mims again applied to succeed him. By this time Piel was sure he didn't want Mims to write the column. On August 27, 1990, Mims presented a formal complaint to the Committee on Scientific Freedom and Responsibility of the American Association for the Advancement of Science, of which he is a member. On October 29, the committee wrote Mims stating that, while they did not take a position concerning the particulars of the dispute, they did "affirm [their] commitment to the principle that articles submitted for publication in journals devoted to science, technology, and medicine should be judged exclusively on their scientific merit. A person's private behavior or religious or political beliefs or affiliations should not serve as criteria in the evaluation of articles submitted for publication." A similar complaint was also addressed to the IEEE. Mims's story has generated a significant amount of press attention, including articles in the *New York Times*, the *Wall Street Journal*, and *Harper's*.

Intolerance Threatens Every Scientist—Amateur Or Not

By Forrest M. Mims III

For more than 20 years I dreamed of some day becoming the writer of "The Amateur Scientist," the popular column in *Scientific American* that inspired me to become a science writer. After my dream came true, *Scientific American* invoked my assignment to write the column because of my views on evolution and abortion.

The controversy over my dismissal from "The Amateur Scientist" has been characterized by irony. Were he alive today, Rufus Porter, the founding editor of *Scientific American*, would be fired from his own publication, for he advocated belief in "Creator God" in the magazine's premier issue in 1845. Since Porter actually wrote about God and I promised not to, his offense was infinitely more embarrassing than mine.

Another irony is that the roots of "The Amateur Scientist" can be traced to the November 1925 issue, the cover of which proclaimed, "The Heavens Declare the Glory of God." This quotation from the Book of Psalms was the title of an article by Albert Ingalls that paved the way for a column on amateur astronomy that eventually became "The Amateur Scientist."

Of course the ultimate irony is that Jonathan Piel, editor of *Scientific American*, continues to find himself the focus of the public relativism and blacklisting.

The Committee on Scientific Freedom and Responsibility of the American Association for the Advancement of Science sent me a letter that stated, "A person's private behavior or religious or political beliefs or affiliations should not serve as criteria in the evaluation of articles submitted for publication. We emphasize, in particular, the consensus of the Committee that even if a person holds religiously derived beliefs that conflict with views commonly held in the scientific community, those beliefs should not influence decisions about publication of scientific articles unless the beliefs are reflected in the articles." The AAAS Committee on Council Affairs reviewed this letter and recently notified me that it states "the relevant AAAS principles."

Many other organizations as well as individual scientists have sent letters of support. An astronomer even offered to help defray the expenses I would incur if I had to write about science. Another suggested that I was attempting to "penetrate" mainline scientific organizations. During a nationally televised debate, an anthropologist who directs an anticreationist organization questioned my competency.

To the best of my knowledge, none of these scientists read any of my works before making their judgments.

The controversy has received extensive media coverage, most of it fair and objective. Among the few exceptions was a newspaper column

Creationist Belief Precludes Credibility On Science Issues

By Arthur L. Caplan

It is tough defending the position that *Scientific American* was right to fire Forrest Mims as the author of "The Amateur Scientist" column. Mims meets one of the central requirements of the job—he is a competent amateur scientist. He is also an excellent writer, as anyone who has had the pleasure of reading any of his numerous popular science writings can attest.

Not only does Mims have many of the requisite credentials for the job, it is no fun defending the conduct of those at *Scientific American* who gave him the boot. Having discovered that Mims is a creationist, the magazine's staff went on to ask him some obviously inappropriate questions about his views concerning abortion, subsequently and inexcusably killed off "The Amateur Scientist" column, and, judging from media reports that I've read, continues to misdirect the alacrity of an outrich under predatory attack in defending the decision to let Mims go

religious discrimination. It is taking a necessary stand on what is and is not science.

In many parts of the United States, high school biology textbooks either omit any reference to evolution or devote no more than a few paragraphs to the subject. The popular media have a nasty habit of giving equal credence to the testability and the scientific status of creationism and of evolutionary theory, as is much in evidence in the writings of those who have embraced the cause of Forrest Mims.

But creationism is not science. The beliefs of Mims and other creationists notwithstanding, the fact of evolution is no longer open for debate. Mims believes that theories of evolution are neither testable nor verifiable. This is simply false, as is evident to anyone who has bothered to examine the refinement and evolution of Darwinism in response to empirical evidence over the past 130 years. Science contends that the biblical account of creation is not literally true, and the evidence exists to prove it. In light of the constant pressure in American society to obscure this message, which is discomforting to some, those who write regular features for the most influential popular scientific magazine in the country must be willing to send it loudly and clearly.

Magazines that purport to be about science, that try to translate developments in science for the gen-

MIMS: Goal: "thwarted by scientific orthodoxy, not science"

The Mims story provoked wide debate, such as here in *The Scientist*, February 18, 1991.

Mims still wants to write the Amateur Scientist column and has some reason to feel aggrieved. During the prolonged negotiations, he forwent other potentially lucrative assignments, and he was asked some impertinent questions. On the other hand, there is no evidence of malice on *Scientific American*'s part. If the negotiations with Mims were somewhat extended, it must be borne in mind that he was applying for a slot that someone else still held. Piel could have been more decisive, and his opinion was certainly second-guessed by his own staff, but his decision was hardly outrageous. An editor clearly has the right to define an editorial position and to refuse it to anyone who does not conform to that position, and Piel's decision was based on Mims's scientific beliefs, not his religious ones.

Prior to the onset of this controversy, Mims had not written on evolutionary issues, nor had he made a systematic study of them. It's hard to figure out exactly what he believes when he says that he rejects "Darwinian Evolution" but accepts natural selection. He concedes that organisms much like blue-green algae flourished 3 billion years ago and that whales with vestigial legs lived 15 million years ago, but then asks why paleontologists can't find any "missing links." The proposals that Mims made covered topics and techniques for which he does have demonstrated competence, and had Piel not asked his innocent question, Mims might well be writing the column today. As it is, he is now the editor of a new hands-on science quarterly called *Science Probe!* and the Amateur Scientist column is not currently appearing in *Scientific American*. This is certainly a regrettable affair, but hardly the stuff of Greek tragedy.

—*Robert Felt*

Robert Felt is the editor of the Pseudo-Science Monitor, *the newsletter of the Midwest Committee for Rational Inquiry, where this article originally appeared in a slightly different form. (See also Martin Gardner's column, "Cal Thomas, the Big Bang, and Forrest Mims," in this issue. —EDITOR)*

Paranormal Beliefs In the USSR

This report on paranormal interests in the Soviet Union was provided to the SKEPTICAL INQUIRER *by Oleg G. Bakhtiarov, Director, Perspectiva Scientific Research Center in Kiev, USSR. In an introductory note to CSICOP Chairman Paul Kurtz, he wrote: "I was greatly pleased to read your article 'Paranormal Pandemonium in the USSR' [SI, Spring 1990]; thank you for mentioning our center in it. The problem of the growth of paranormal beliefs disturbs us very much. Indeed, Russia is now returning to the Golden Age of Occultism of the early 1900s. We are making some efforts to provide truly scientific investigations of these claims to prevent the spread of 'occult optimism' in the mass media and in the common conscience. In order to provide the U.S. and Western public and skeptics organizations with more information about the paranormal in the USSR, we send you this survey on the subject by the center's Analytical Section."*

Public opinion concerning paranormal belief is divided among three main groups: "fans," optimists, and skeptics.

Fans are ready to believe almost any information about the paranormal; their faith is rather steady, as if it were a kind of religion. Fans are the core members of organizations that focus on UFOs, ESP, mental-healing, spiritual channeling, and so on. They constitute the major part of the USSR common conscience (and of the mass media).

Optimists believe that the situation will improve. They say something like this: "Okay, the paranormal is not to be accepted without any doubt. We must observe it, analyze it, and so on. But we believe that the facts are correct. ESP, UFOs, mental-healing, and other phenomena really do exist, but we must provide scientifically reliable investigations and wait until official science explains them."

Skeptics form a rather small group. They consider claims of the paranormal to be neither truth nor (alleged) facts in need of special investigation. They say: "All these paranormal phenomena are just mystification—they can't be explained by science, so they simply do not exist."

The USSR mass media belong mostly to the first group (fans) and in some cases to the second (optimists). We have no newspaper or magazine that provides a truly scientific investigation of paranormal claims. However, some efforts in this area are being made by *Nauka i Religia* (Science and Religion), a journal published by *Znaniye* (Knowledge), a public organization. Here is some information about the activity of paranormal believers:

UFOlogy

The headquarters of the Committee of UFOs and Atmospheric Anomalies (V. Azhazha, President) is in Moscow, and the organization has branches in all major cities of the USSR. The Committee's main work consists of gathering information about UFOs in the USSR.

The School of Nontraditional Sciences in Kiev opened a UFO department last year. Lecturers tell the students their theories about UFOs, contacts with UFOnauts, and so on. Mystic beliefs (like Madame Blavatsky's Theosophy) are popular here.

Every city in the USSR has its group of UFOlogy enthusiasts who gather information about UFOs, give lectures, and provide exhibitions of photographs, reports of eyewitnesses, and so on.

Healers

Among the healers are individuals who work alone as well as members of healer organizations. There are several psychic healers' groups in the USSR, such as the Organization of Professional Extrasenses and the Association of Meditative Autogene Training. Every large city has a number of organizations of this kind. The center of their activity is in Kiev, where there are organized psychic-healer groups. These organizations provide healing sessions, lectures, and seminars; show films; and publish literature. There are about 40 such organizations in Kiev, and every city in the USSR has a number of similar groups.

Many people in the United States have become acquainted with one of the healers. I refer to Anatoly Kashperovsky, who put on a number of his "healing shows" there, as well as in Poland, Germany, and Israel. He is popular in the USSR because of his television shows, "healing" sessions in the sports area, and his help to the Soviet hospitals.

Not long ago, a new "star" of healing appeared—Gennady Rootzko. He says that he is a pupil of the Tibetan monk Lakh-do, who lived near Leningrad (the native city of Rootzko); that he knows 16,997 languages; that he can read thoughts; that he has had several contacts with UFOnauts; that he is the one who must "save the ill world"; and that he can heal all illnesses.

Rootzko's healing shows gather huge crowds in Leningrad, Riga, and Kiev. In Kiev he had two shows in the Republican Stadium (with 100,000 attending each) and ten shows in the Palace of Sports (twice a day, 30,000 at each performance).

Usually, Rootzko wears a black kimono; he is dark, with long hair and a beard. On his shows he makes some gestures with his hands (like Tai-Chi-Chuan exercises) and sings something he calls "Tibetan singing." He also works with hypnosis or suggestion, making people "become free of their illnesses."

As for the television shows of the well-known Chumak and others like him (for example, Sidorchuk, in Kiev), they are not officially permitted now. This may be because of the efforts of physicians who strongly protested against such shows.

There are also "village healers" of various kinds, who use phytotherapy

and primitive hypnosis; "kolduns" (wizards), who use psychic-healing and hypnosis—Moscow is the headquarters of the Association of Russian Wizards, organized in April 1990; shamans (in Siberia), who use phytotherapy and psychic trans-healing. Almost every village has its own such healer.

Nontraditional Philosophies

The growth of Glasnost after the long years of silence was the stimulus for the appearance of nontraditional philosophy adepts in the USSR. They are headquartered in the Agni Yoga Center in Piga. Their philosophy is based on the teachings of Nikolai Rerikh, the well-known painter, who is connected with the Urushvati Institute in India. The Agni Yoga Center also publishes books by N. Rokotova (Rerikh's wife) and holds lectures and seminars.

Satanism or cult crimes are not present in the USSR, but there is some belief among the public in the mysticism of Kabbal and medieval magic cults.

In Moscow there is also a center of the Soviet Hare Krishna Society, where lectures, seminars, and courses in Vedic Therapy are presented.

Astrology

Astrology is rather popular in the USSR now. Almost every large newspaper carries articles about it and many people believe them. Some consult astrologers more or less regularly.

Pavel Globa and his wife, Tamara, are the major astrologers. They provide horoscopes for newspapers and give public lectures about astrology. (They gave five shows in Kiev; about 25,000 people were present at each.)

The Soviet Astrological Association is very close to officially declaring itself; according to some reports, it may include more than 5,000 members.

—Dimitry V. Kanashkin

Dimitry Kanashkin is chief of the Analytical Section of the Perspectiva Scientific Research Center in Kiev.

Origin of the Myth About a Missing Day in Time

The myth that our "astronauts and space scientists" at Greenbelt, Maryland, located a missing day in time has been around since at least 1969 and apparently even earlier (*SI*, Spring 1986, pp. 258-264; see also *SI*, Fall 1986, p. 108). Briefly, the story is that space scientists were checking the position of planets by computer to avoid collision with satellites. The computer discovered a missing 23 hours and 20 minutes at the time Joshua made the sun stand still and an additional 40 minutes at the point where Isaiah made the sun move backward as a sign to Hezekiah.

Tom McIver, in his Spring 1986 *SI* article, "Ancient Tales and Space-Age Myths of Creationist Evangelism," was able to trace published versions of the story to Harold Hill, a "consultant to the space industry." Hill claims to have been called in to get a computer up and running after it shut down when NASA's Goddard Space Flight Center first opened and heard about the Missing Day Incident there, though he does not know the names of those involved.

I was able to obtain some further information from the National Aeronautics and Space Administration (NASA) about this tale. NASA quickly informed me that the whole story was a fabrication. To quote from a letter sent to me by Brian Dunbar, Public Affairs Officer at the NASA Office of Space Science and Application in Washington:

> This story is a myth that has been around since the mid-1960s, obviously evolving in the intervening years, and stems from the reconciliation of different timekeeping systems. The need for an "adjustment" to our timekeeping arose from our lack of adequate computing power in the early days of the Apollo program. Designing navigational paths through the Solar System was made difficult by the complexity of three-body equations. Part of that complexity lay in the critical timing of the motion of each body. At that time there was no universal agreement as to an Earth standard time. NASA now operates on Universal Time (often referred to as Greenwich Mean Time). Earth ephemeris time (sidereal time) and Universal Time are not the same, and it was not clear in the 1960s which was better for determining trajectories. The resolution and reconciliation involved changing a variety of methods and settling on Universal Time. At no time during this reconciliation was a "missing day" discovered.

NASA confirmed that Hill was involved with them, although not quite in the capacity that he claims as a "consultant to the space industry" called in to get computers up and running when they crashed. Hill, formerly president of the Curtis Engine Company of Baltimore, "was involved in some diesel engine operations and maintenance contracting . . . at Goddard and a few remote spacecraft tracking stations," according to James S. Lacy of the NASA Office of Public Relations.

—*Robert W. Loftin*

Robert W. Loftin is professor of philosophy, Department of History and Philosophy, University of North Florida, Jacksonville, FL 32216.

Pell Aide Hears Code In Backwards Speeches

The word was *simone*. Played backwards, it spelled embarrassment for Senator Claiborne Pell (D-R.I.).

Pell is Capitol Hill's best-known proponent of psychic research, the only member of Congress known to have a full-time special assistant whose sole job is to promote research into psychic phenomena. One month before Election Day 1990, during the military buildup for the 1991 Persian Gulf war against Iraq, this staff member, C. B. Scott Jones, wrote a letter to Secretary of Defense Richard B. Cheney.

Jones warned that the word *simone* appeared when tapes of speeches made by Cheney, Secretary of State James A. Baker III, and President Bush were played backwards. The speeches, Jones said, dealt with the Gulf crisis.

"I mention this situation in case it is a code word that would not be in the national interest to be known," said Jones, who explained that the word was discovered through "a technology known as Reverse Speech Therapy." *Simone*, he said, was "a word that we have never seen in a speech reversal."

Pell said, "It certainly isn't helpful" that the letter was leaked to reporters at a time when he faced a tough reelection campaign against Republican Congresswoman Claudine Schneider. Pell added that "while it sounds wacky, there may be some merit to [Reverse Speech Therapy]" because he trusts in "Scott's own responsible role in life."

Jones was reprimanded, not for sending the warning, but for violating Pell's office policy against staffers' using Senate letterhead stationery without permission.

Anyone with a little imagination can hear words or phrases when speech or song is played backwards. Such unintended "messages" are found in everything from the Bible to rock music.

So one question raised by the "simone" case was, Where did the word *simone* come from?

To find out, I called Chris Camp, the news director for WPRO-Radio in Providence. I asked him to speak the word "simone" into one of the station's tape recorders and then play it backwards. Camp reported that it sounded like enormous."

So I asked Camp to repeat the experiment, this time by recording the word "enormous." Played backwards, "enormous" became "simone" (pronounced "si-MO-nee").

The results suggested that every time Bush, Baker, or Cheney used the word *enormous* in one of their speeches to describe the massive military operation in the Gulf, the word *simone* would appear to anyone who listened for a backwards message. Other words or word combinations might produce the same effect.

John Mulligan, a reporter at the *Providence Journal*, then tracked the source of Jones's warning to David Oates, an unemployed electronics buff from Dallas with no scientific credentials.

I called Oates, who said he was a former youth counselor and had written a book on reverse speech therapy that was published in 1987 in his native Australia.

He told me he listened to 20 to 30 hours of tapes played backwards each week because he believed that unconscious thoughts surface in reverse speech. Oates called his work "a discovery of tremendous value."

Oates said he heard "simone" five times in the 20 to 30 hours of Persian Gulf speeches by Bush, Cheney, and Baker that he taped off Cable News Network. Oates wondered if it was some kind of code word, and he mentioned his concern to Jones when Pell's staffer contacted him about Reverse Speech Therapy. Jones then wrote the letter to Cheney.

When I asked Oates for an example of a "simone" message, he cited an August 8, 1990, news conference by Bush, where the backwards phrase that caught his interest was "Simone in the sands." He played the tape for me. Like most backwards messages, the phrase isn't very clear, but you can hear it if you're told what to listen for.

What were listeners actually hearing when Bush said "Simone in the sands?" Oates said the president's words were "Iraq has massed an enormous war machine." "Simone," he said, came from the sounds in the word *enormous*.

Columnist Philip Terzian said the affair reminded him of the Beatles' white album, where listeners heard the backwards message "I bury Paul." "I've been reading [Jones's] letter to Richard Cheney backwards," Terzian wrote, "and [I] am certain I can hear a voice say: 'I bury Pell.' "

It was not to be. Pell's opponent, Schneider, could not capitalize on the issue because she is also a believer in

psychic phenomena and other unconventional ideas.

Pell easily won reelection.

—*Eugene Emery, Jr.*

Eugene Emery is the science reporter for the Providence Journal.

A Stylebook With Style

Newspapers are, often unintentionally, among the widest disseminators of misinformation about fringe-science and the paranormal. Major newspapers have stylebooks that provide guidelines for treating all manner of subjects. Professor Fred Donnelly of the University of New Brunswick brings to our welcome attention some refreshingly candid and responsible entries in one of them, the stylebook of the *Toronto Globe and Mail*, Canada's leading newspaper.

Here is the stylebook's entry on Astrology: "We should not make even the slightest implication in a news story that *The Globe* or any of its staff believe in astrology. *See* Zodiac."

The entry for Zodiac says this: "Lower case. It is an imaginary belt around the sky, divided into 12 sections, called signs. It is no longer correct to say that the names of these sections are those of the principal constellation found in them. Precession of the equinoxes over the centuries since the signs were named has put each of these constellations into the sign after the one that bears its name. We must not indicate in a news story, however obliquely, that The Globe or any member of its staff believes in astrology."

The entry for Psychic is not quite as forthrightly negative but does include an essential qualifier, "alleged": It says "psychic" should be reserved "for parapsychology, the field of alleged mental abilities that are not explainable by reference to the normal senses. 'Psychic' is a general term, and we are more informative if we use more specific ones when these apply, such as clairvoyant, telepathic, telekinetic."

It would be even better if the stylebook would suggest that "alleged," "self-proclaimed," or "self-described" be used on first reference to a "psychic" or "clairvoyant," and wherever possible to place the latter designations in quotes. But that's a minor quibble: *the Globe and Mail's* stylebook, prepared by J. A. McFarlane and Warren Clements, has taken an important step in the right direction.

A check of the Associated Press Stylebook finds no entries at all on these or related subjects.

—*Kendrick Frazier*

NCSE Acquires Creation/Evolution *Journal*

The National Center for Science Education has become the new publisher of *Creation/Evolution*, a magazine/journal devoted to improving popular understanding of evolution and critiquing claims by anti-evolutionists.

The Berkeley-based NCSE is the nonprofit national organization of scientists and laypersons promoting evolution education and opposing the anti-evolutionism of "scientific" crea-

tionism in the public-school classroom. "The marriage is a natural," says the journal's new editor John R. Cole, an anthropologist at the University of Massachusetts-Amherst.

NCSE will publish two issues a year of *Creation/Evolution* and four issues of the shorter *NCSE Reports*. For further information contact Eugenie C. Scott, Executive Director, NCSE, 2107 Dwight Way #105, Berkeley, CA 94704.

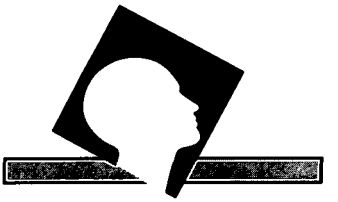
Readers' Guide *Now Indexes* SI

We are pleased to report that the *Readers' Guide to Periodical Literature* is now indexing the SKEPTICAL INQUIRER, beginning with the first issue of 1991. Students at all levels as well as scholars and journalists use the *Readers' Guide* to identify sources of material for term papers, reports, and books and articles. The addition of the SKEPTICAL INQUIRER to the *Readers' Guide* listings will help bring to the attention of these wider audiences the kinds of critical evaluations and discussions on a wide variety of topics for which *SI* has long been known to its regular readers.

It will now become especially important for more libraries at all levels to carry the SKEPTICAL INQUIRER so that students and researchers can have direct access to articles referenced. Readers are encouraged to bring *SI* and the news about the *Readers' Guide* to the attention of libraries in their areas.

—*Kendrick Frazier*

Notes of a Fringe-Watcher



MARTIN GARDNER

Cal Thomas, the Big Bang, and Forrest Mims

Our local newspaper carries a column by Cal Thomas, a tall, handsome fundamentalist of extreme right-wing political views. When Jerry Falwell's Moral Majority was in full swing, Thomas was his vice president in charge of communications. He began his career in radio news, but is now best known for his widely syndicated column, and for his frequent appearances on television talk-shows.

On January 10 of this year, Thomas's column was headed "Big Bang Theory Explodes." It has been decades since I have encountered so much scientific ignorance compressed in so small a space.

Astronomers have recently discovered superclusters of galaxies, surrounding monstrous voids and sometimes forming giant "sheets," that are hard to explain by current theories of galaxy formation. It is assumed that a vast amount of invisible or "dark" matter is involved, but the nature of such matter has yet to be

identified. In no way do these large-scale structures discredit the big bang. They just mean that cosmologists have more work to do in understanding the bang and how galaxies evolve.

To Thomas, however, the big-bang theory "has gone bust" and this proves that modern science is a tissue of shaky theories put forth by scientists to rationalize their secular-humanist bias. "Those who inquired after other possible origins of the universe," Thomas writes, "including the theory that a God might have created it all, often have been denounced and their ideas expelled by court order on grounds that they are not 'scientific.' "

Thomas brings up Einstein's "cosmological constant"—a conjecture Einstein made when he favored a closed, steady-state model of the universe. To prevent gravity from collapsing a static universe, Einstein suggested that matter might contain a weak repulsive force. As soon as it became known that the universe is not static, but expanding, Einstein called his conjecture "the greatest blunder of my life." To Thomas, this shows how Einstein distorted his equations to fit his beliefs. Balderdash. At the time, the conjecture was a reasonable one. Thomas is probably unaware that the cosmological constant is now making a comeback among several cosmologists.

Thomas sees today's scientists as dominated by "extreme hubris," constantly altering their theories, but always dogmatically defending whatever is currently fashionable. "Maybe scientists should eat a little humble pie and consider what God . . . said to Job: 'Where were you when I laid the foundations of the earth?' "

Scientists have no more hubris than anyone else, and certainly less than fundamentalists who commit the sin of willful ignorance. Science is a vast, complex, cooperative, often bumbling enterprise that has built into it a marvelous power of self-correction in the light of fresh data. It cannot reach final, absolute truth, but it continually moves closer to it. Otherwise, how explain the incredible power of science to make predictions and build technologies? If there isn't a mathematically structured world "out there," toward which scientific assertions to some degree correspond, it is impossible to account for our ability to build skyscrapers, television sets, and atom bombs. It is impossible to explain why, if you bury a steel cube where no one can see it for years, then dig it up, it still has six faces and eight corners.

Cal Thomas is not content with exploding the big bang and making cosmologists seem like simpletons. He goes on to cite a recent flap concerning *Scientific American* that involves a free-lance writer named Forrest Mims III. To Thomas, this incident is another glaring example of the scientific community's prejudice against religion.

Mims, age 47, is a self-educated engineer with a degree from Texas A&M and a home in the village of Seguin, Texas. He says he has written 70 books (only three are listed in *Books in Print*) and 500 magazine articles, mostly about electronics and computers. Long an admirer of C. L. (Red) Stong, who for many years wrote *Scientific American*'s Amateur Scientist column, Mims approached the magazine in 1989 in the hope of continuing the column after Stong's successor, Jearl Walker, gave notice that he would shortly have to stop writing it. Jonathan Piel, the magazine's editor, and others on the staff were favorably impressed by Mims's proposals. But when Mims visited the magazine to discuss the possibility of becoming a permanent contributor, to Piel's astonishment it became apparent that Mims did not believe in evolution.

Although he prefers to call himself an evangelical, Mims is a Southern Baptist fundamentalist. He is not a "young earther" who thinks the universe was created about ten thousand years ago. He allows that individual species were created at intervals over long periods of time, the "days" of Genesis not to be taken as 24-hour time-spans. Adam and Eve had no navels, Mims told me over the phone, for the simple reason that they had no parents. He was not sure whether Eve had hair and had not realized that hair bears as much evidence of past events as belly buttons. (Hair is dead tissue that grows from its roots, like teeth and fingernails, in small increments. If God could provide Adam and Eve with hair, teeth, and nails that had no past history, he could just as easily give them navels with no past history.) He admitted being puzzled over the question of whether the first trees had rings.

Cal Thomas quotes Mims as saying, "Insect paleontologists are totally frustrated by the complete lack of any fossil evidence that links insects to anything else." Indeed, Mims told me, it was his study of insects caught in amber that first made him doubt evolution.

Since *Scientific American* decided not to buy columns from Mims, he has been tirelessly appearing on television and radio talk-shows and giving press interviews charging unjust discrimination for his religious views. The *New York Times* (October 24, 1990) headlined its account: "Hire a Creationist? A Nonbeliever in Darwin? Not a Proud Science Journal."

Piel agreed to publish three of Mims's columns as part of a legal settlement of this situation. At least two *Scientific American* editors thought Mims should have been made a permanent writer of the column in spite of his naive views about evolution. According to the *Washington Post* (November 1, 1990), the Texas affiliate of the American Civil Liberties Union supports Mims's claim, likening the action of the magazine to the blacklisting of leftists in the 1950s.

"*Scientific American*'s editor is living in the dark ages," Mims told the *Post*. "He's practicing what was practiced at the time of the Inquisition, judging people for their beliefs and not what they can do." The *Wall Street Journal* (October 22, 1990) wrote: "The dispute raises explosive constitutional issues. On one side is an individual's right to practice his religion; on the other is a publication's right to decide whom it will employ."

Mims secretly recorded a 30-minute phone conversation with Piel from which a long excerpt was published in *Harper's Magazine* (March 1991). "I'm sure that you're a man of honor . . . ," Piel said. "There's no question that on their own merits the columns are fabulous. . . . That's just not an issue. It's the public relations nightmare that is keeping me awake."

No one doubts Mims's ability to write about home experiments without smuggling in opinions on evolution and the Bible. But I agree with Piel that the PR nightmare was sufficient grounds for not hiring Mims as a contributing editor. It was not Mims's religion. I know from having been a contributing editor of *Scientific American* for 25 years that it does not discriminate against anyone on the basis of sex, color, or creed. There have been practicing Catholics and Jews on staff, and conservative Protestants. I myself am a philosophical theist.

From a PR standpoint, having a creationist write regularly for the magazine would become increasingly embarrassing. Creationists are fond of boasting about how many of them

hold responsible positions in the scientific community. You can be sure that their magazines and books and lawyers would soon be trumpeting the fact that Mims was a contributing columnist for *Scientific American.*

Let's make two thought experiments. Suppose a medical journal considered having someone write a column about nutrition and then discovered that the person was a naturopath who did not believe that germs cause disease. Would the journal have the freedom not to publish that writer? Suppose *Sky and Telescope* planned on assigning someone to write a column on how to make or buy home telescopes and then found out that the columnist believed the sun went around the earth. Such a person could be well informed about telescopes, but would the magazine be justified in not giving the writer the assignment to avoid facing ridicule for having as a contributor someone who did not accept Copernican astronomy?

It is true that believers in an earth-centered universe are rare these days, but the fact of evolution is as strongly supported by thousands of pieces of evidence as the Copernican theory. When a conjecture becomes this strongly confirmed it is called a fact. There is, of course, dispute over the *process* of evolution, but no dispute over its fact by anyone with an elementary understanding of historical geology and the life sciences. "If he [Mims] believes in creationism," said Robert Park, a University of Maryland physicist, "he has established that he doesn't have credibility to write about science." Mims was not abandoned for his religious views but for the embarrassment his scientific ignorance would have caused the magazine.

Mims is now editor of *Science Probe!*, subtitled "The Amateur Scientist's Journal." It is a new, slickly produced quarterly, which Mims co-founded with the publisher Larry Steckler, head of Gernsback Publications. As of the time I write, only two issues have so far appeared. The lead article in the first issue was by Dennis Flanagan, a former editor of *Scientific American,* who wrote about his memories of C. L. Stong.

Although nothing so far in this handsome magazine reflects creationist views, a regular column on science fairs is written by David R. McQueen, a member of the staff who is an active creationist. If *Science Probe!* gets off the ground, it will be interesting to see if Mims ever has the courage to run an article on, say, how amateur scientists can build equipment for testing (by any of several different techniques) the ages of fossils and human artifacts. Or will he, like a good Southern Baptist, carefully avoid any topic that might provide support for a theory that fundamentalists believe to be the work of Satan?

Science loses little time acknowledging errors. Look how quickly Einstein admitted his blunder. Look how quickly the revolutions of relativity and quantum theory took over physics. Look how quickly the claims of N-rays, polywater, and cold fusion were shot down. Compare this with the centuries it took the Vatican to admit its blunder about Galileo. It is unlikely that either Cal Thomas or Forrest Mims will ever go back to college—fundamentalist colleges like Jerry Falwell's excepted—to take Geology 101 and change their minds about evolution. ■

Psychic Vibrations

Gulf Breeze Flap Fades, But Still Entertains

ROBERT SHEAFFER

The frenzied wave of supposed UFO photos and sightings in Gulf Breeze, Florida, touted as "the most astounding multiple sighting of UFOs in U.S. history," continues to fascinate and to entertain, even as it sinks slowly into the sunset. When we last left prime UFO-spotter Ed Walters (*SI*, Winter 1991:135), he was grappling with the fact that a model UFO had been discovered in his former home and with a neighborhood youth's confession that he had helped Ed fake some of the photos. Since then, things have gotten worse.

In the wake of these embarrassing disclosures, MUFON, the largest surviving UFO group (which has always taken a staunch pro-Walters line), asked two of its most respected investigators, Rex and Carol Salisberry, to take another look into the case. At one time MUFON's hierarchy expressed the highest degree of confidence in the Salisberrys' investigative skills and presented them a special award at last year's MUFON conference for outstanding investigations. But when the two reported their findings that Ed Walters was "adept at trick photography" and had faked the photos, MUFON suddenly lost all confidence—not in Walters, of course, but in the Salisberrys—and tossed them out of the organization and disavowed their report. Carol Salisberry writes that the local MUFON group "is out to lynch us, and the hierarchy is goading them on."

Nonetheless, local hotels, restaurants, and travel agents are doing all they can to cash in on the UFOria. The director of tourism for the Pensacola Area Chamber of Commerce called the situation in Gulf Breeze "very, very positive" and said UFO tour groups are being arranged. A local travel agent adds that UFO-seeking tourists have "brought in a lot of money to Gulf Breeze merchants when they desperately needed it." But six Gulf Breeze visitors last year most certainly did *not* benefit from their UFO pilgrimage. Last July, six American soldiers with top-secret clearances went AWOL from their Military Intelligence Brigade in Germany and mysteriously turned up in Gulf Breeze. Arrested by local police, they were taken into military custody at Ft. Benning, Georgia. Newspaper reports suggested that the six were members of a "Rapture" or "end-of-the-world" cult that believed that "Jesus Christ was an astronaut." They were reported to have come to Gulf Breeze to "hunt down the Antichrist." Conflicting accounts were published about the motivation for this incident, and several news organizations received a bizarre letter—it looked as though it had been produced on a teletype—demanding that the U.S. Army "Free the Gulf Breeze Six." Whatever the reason, charges were soon dropped against the soldiers, who were released and then discharged.

If press reports were correct about Walters receiving a $200,000 advance for his recent book, the publisher isn't likely to recoup that investment; and if Walters was paid $450,000, as was reported, for the rights to a television miniseries, nobody seems to be rushing to produce it. Walters was not even successful in his attempt to use his recent fame as a springboard into local politics; running for a seat on the Gulf Breeze City Commission, he came in dead last. Even veteran saucerer James Moseley, who until recently professed being impressed by Walters's apparent sincerity, now concedes "it looks more and more likely that the Walters story is a hoax." Thus the three-ring flying-saucer circus in Gulf Breeze seems to be slowly winding down. Fear not: it does not spell the end of saucerdom. Before long, more astonishing UFO photos will be taken somewhere else by some other enterprising soul, and the UFO show will once again swing into high gear, with a fresh new cast.

* * *

Apparently Satanists are not the only ones with sneaky messages that can be heard by playing their recordings backward. According to an aide for Rhode Island Senator Claiborne Pell, backward masking of a secret code word was detected in speeches about the Persian Gulf crisis given by President Bush, Secretary of State James Baker, and Secretary of Defense Dick Cheney. The Associated Press reported last October 20 that C. B. Scott Jones, a member of Pell's staff who specializes in "paranormal" developments, wrote to Secretary Cheney claiming that when the three officials' statements about Iraq were played backwards, they appeared to contain the code word "Simone." Jones explained that a group of psychologists he has been working with has been playing speeches backward, and that "Simone" is "a word that we have never seen in a speech reversal." A Pentagon spokesman denied that any code words were in the speeches, backward or forward. Senator Pell at first allowed that while the idea "sounds wacky, there may be some merit to it." But not long afterward, the Senator—who was in the middle of a re-election campaign—reprimanded Jones, who has served as his

staff specialist in parapsychology for six years. Pell easily won re-election nonetheless.

In other developments from the Persian Gulf, Cindy Adams reported in the *New York Post* on January 21 that a Japanese politician told her that "mutual interest in extraterrestrials" was responsible for Iraq freeing 74 Japanese hostages. Koko Satch of Japan's Democratic Liberal party confirmed that "this was negotiated by mentioning [Saddam] Hussein's recognition of an outer space civilization." Japanese Prime Minister Kaifu sent word to Iraq that "all the people on Earth are the same from the point of view of the space people in the UFOs. . . . We must create an environment in which every nation can discuss UFO problems regardless of their national interest." Whether or not this was the key that sprang the captives, Adams cannot say, but the Japanese hostages *were* released.

Finally, as if the conflict in the Persian Gulf were not already worrisome enough, "a fervor has been building among millions of evangelical Christians nationwide" to the effect that the war in the Middle East represents the final battle of Armageddon, in fulfillment of biblical prophecy. A story from the *Los Angeles Times* news service (February 8) reported that many pastors are addressing this issue with their congregations, "mostly calmly." In a poll taken a week after the fighting started, the Gallup organization asked a sample of the public whether this battle represents the final "Armageddon." Fifteen percent

said that it did, 74 percent said that it did not, and the rest were not sure. In a ten-week period from December to February, an apocalyptic work by John F. Walvoord titled *Armageddon, Oil, and the Middle East Crisis* sold an astounding 600,000 copies. While the End Times may indeed have started, if by the time you are reading this the Rapture is not already robustly underway, you can be reassured that the war in the Middle East is just another of the many conflicts that have punctuated human history, and that history itself still has a good many years to run. ■

Lucid Dreaming: Awake in Your Sleep?

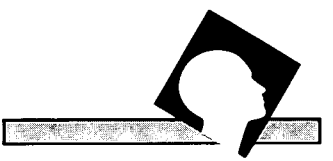
SUSAN BLACKMORE

What could it mean to be conscious in your dreams? For most of us, dreaming is something quite separate from normal life. When we wake up from being chased by a ferocious tiger, or seduced by a devastatingly good-looking Nobel Prize winner we realize with relief or disappointment that "it was only a dream."

Yet there are some dreams that are not like that. Lucid dreams are dreams in which you know *at the time* that you are dreaming. That they are different from ordinary dreams is obvious as soon as you have one. The experience is something like waking up in your dreams. It is as though you "come to" and find you are dreaming.

Lucid dreams used to be a topic within psychical research and parapsychology. Perhaps their incomprehensibility made them good candidates for being thought paranormal. More recently, however, they have begun to appear in psychology journals and have dropped out of parapsychology—a good example of how the field of parapsychology shrinks when any of its subject matter is actually explained.

Lucidity has also become something of a New Age fad. There are machines and gadgets you can buy and special clubs you can join to learn how to induce lucid dreams. But this commercialization should not let us lose sight of the very real fascination of lucid dreaming. It forces us to ask questions about the nature of consciousness, deliberate control over our actions, and the nature of imaginary worlds.



The fascination of lucid dreams, in which you know at the time that you are dreaming, forces us to ask questions about the nature of consciousness, deliberate control over our actions, and the nature of imaginary worlds.

A Real Dream or Not?

The term *lucid dreaming* was coined by the Dutch psychiatrist Frederik van Eeden in 1913. It is something of a misnomer since it means something quite different from just clear or vivid dreaming. Nevertheless we are certainly stuck with it. Van Eeden explained that in this sort of dream "the re-integration of the psychic functions is so complete that the sleeper reaches a state of perfect awareness and is able to direct his attention, and to attempt different acts of free volition. Yet the sleep, as I am able confidently to state, is undisturbed, deep, and refreshing."

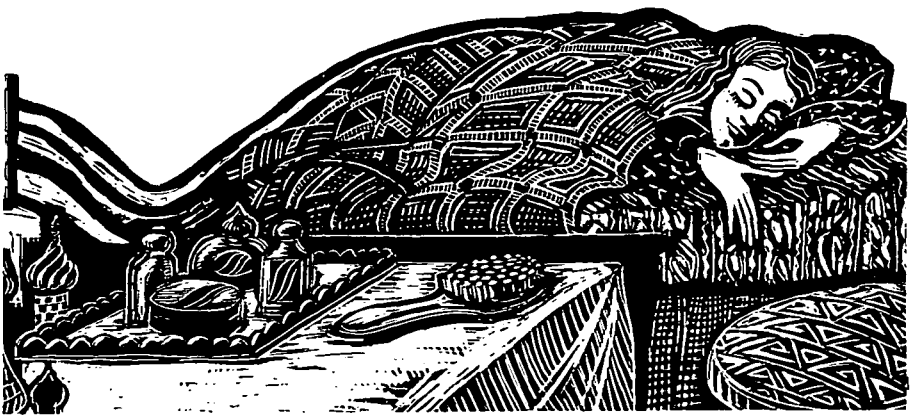
This implied that there could be consciousness during sleep, a claim many psychologists denied for more than 50 years. Orthodox sleep researchers argued that lucid dreams could not possibly be real dreams. If the accounts were valid, then the experiences must have occurred during brief moments of wakefulness or in the transition between waking and sleeping, not in the kind of deep sleep in which rapid eye movements (REMs) and ordinary dreams usually occur. In other words, they could not really be dreams at all.

This presented a challenge to lucid dreamers who wanted to convince people that they really were awake in their dreams. But of course when you are deep asleep and dreaming you cannot shout, "Hey! Listen to me. I'm dreaming right now." All the muscles of the body are paralyzed.

It was Keith Hearne (1978), of the University of Hull, who first exploited the fact that not all the muscles are paralyzed. In REM sleep the eyes move. So perhaps a lucid dreamer could signal by moving the eyes in a predetermined pattern. Just over ten years ago, lucid dreamer Alan Worsley first managed this in Hearne's laboratory. He decided to move his eyes left and right eight times in succession whenever he became lucid. Using a polygraph, Hearne could watch the eye movements for signs of the special signal. He found it in the midst of REM sleep. So lucid dreams are real dreams and do occur during REM sleep.

Further research showed that Worsley's lucid dreams most often occurred in the early morning, around 6:30 A.M., nearly half an hour into a REM period and toward the end of a burst of rapid eye movements. They usually lasted for two to five minutes. Later research showed that they occur at times of particularly high arousal during REM sleep (Hearne 1978).

It is sometimes said that discoveries in science happen when the time is



"Lucid dreams are potentially even more interesting than we thought. As well as providing insight into the nature of sleep and dreams, they may give clues to the nature of consciousness itself."

right for them. It was one of those odd things that at just the same time, but unbeknown to Hearne, Stephen LaBerge, at Stanford University in California, was trying the same experiment. He too succeeded, but resistance to the idea was very strong. In 1980, both *Science* and *Nature* rejected his first paper on the discovery (LaBerge 1985). It was only later that it became clear what an important step this had been.

An Identifiable State?

It would be especially interesting if lucid dreams were associated with a unique physiological state. In fact this has not been found, although this is not very surprising since the same is true of other altered states, such as out-of-body experiences and trances of various kinds. However, lucid dreams do tend to occur in periods of higher cortical arousal. Perhaps a certain threshold of arousal has to be reached before awareness can be sustained.

The beginning of lucidity (marked by eye signals, of course) is associated with pauses in breathing, brief changes in heart rate, and skin response changes, but there is no unique combination that allows the lucidity to be identified by an observer.

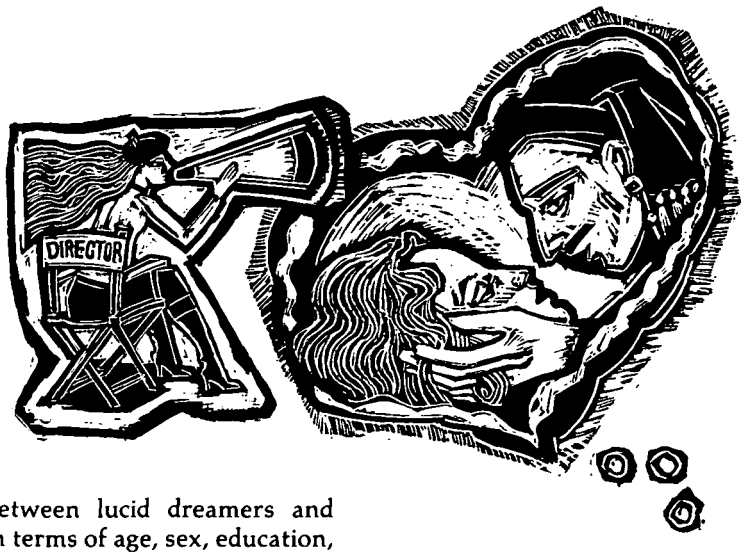
In terms of the dream itself, there are several features that seem to provoke lucidity. Sometimes heightened anxiety or stress precedes it. More often there is a kind of intellectual recognition that something "dreamlike" or incongruous is going on (Fox 1962; Green 1968; LaBerge 1985).

It is common to wake from an ordinary dream and wonder, "How on earth could I have been fooled into thinking that I was really doing push-ups on a blue beach?" A little more awareness is shown when we realize this in the dream. If you ask yourself, "Could this be a dream?" and answer "No" (or don't answer at all), this is called a pre-lucid dream. Finally, if you answer "Yes," it becomes a fully lucid dream.

It could be that once there is sufficient cortical arousal it is possible to apply a bit of critical thought; to remember enough about how the world ought to be to recognize the dream world as ridiculous, or perhaps to remember enough about oneself to know that these events can't be continuous with normal waking life. However, tempting as it is to conclude that the critical insight *produces* the lucidity, we have only an apparent correlation and cannot deduce cause and effect from it.

Becoming a Lucid Dreamer

Surveys have shown that about 50 percent of people (and in some cases more) have had at least one lucid dream in their lives. (See, for example, Blackmore 1982; Gackenbach and LaBerge 1988; Green 1968.) Of course surveys are unreliable in that many people may not understand the question. In particular, if you have never had a lucid dream, it is easy to misunderstand what is meant by the term. So overestimates might be expected. Beyond this, it does not seem that surveys can find out much. There are no very consistent differ-



ences between lucid dreamers and others in terms of age, sex, education, and so on (Green 1968; Gackenbach and LaBerge 1988).

For many people, having lucid dreams is fun, and they want to learn how to have more or to induce them at will. One finding from early experimental work was that high levels of physical (and emotional) activity during the day tend to precede lucidity at night. Waking during the night and carrying out some kind of activity before falling asleep again can also encourage a lucid dream during the next REM period and is the basis of some induction techniques.

Many methods have been developed (Gackenbach and Bosveld 1989; Tart 1988; Price and Cohen 1988). They roughly fall into three categories.

One of the best known is LaBerge's MILD (Mnemonic Induction of Lucid Dreaming). This is done on waking in the early morning from a dream. You should wake up fully, engage in some activity like reading or walking about, and then lie down to go to sleep again. Then you must imagine yourself asleep and dreaming, rehearse the dream from which you woke, and remind yourself, "Next time I dream this I want to remember I'm dreaming."

A second approach involves constantly reminding yourself to become lucid throughout the day rather than the night. This is based on the idea that we spend most of our time in a kind of waking daze. If we could be more lucid in waking life, perhaps we could be more lucid while dreaming. German psychologist Paul Tholey suggests asking yourself many times every day, "Am I dreaming or not?" This sounds easy but is not. It takes a lot of determination and persistence not to forget all about it. For those who do forget, French researcher Clerc suggests writing a large "C" on your hand (for "conscious") to remind you (Tholey 1983; Gackenbach and Bosveld 1989).

This kind of method is similar to the age-old technique for increasing awareness by meditation and mindfulness. Advanced practitioners of meditation claim to maintain awareness through a large proportion of their sleep. TM is often claimed to lead to sleep awareness. So perhaps it is not surprising that some recent research finds associations between meditation and increased lucidity (Gackenbach and Bosveld 1989).

The third and final approach requires a variety of gadgets. The idea is to use some sort of external signal

"All of these experiences have something in common. In all of them the 'real' world has been replaced by some kind of imaginary replica. . . . It is only in the lucid dream that one realizes it is a dream."

to remind people, while they are actually in REM sleep, that they are dreaming. Hearne first tried spraying water onto sleepers' faces or hands but found it too unreliable. This sometimes caused them to incorporate water imagery into their dreams, but they rarely became lucid. He eventually decided to use a mild electric shock to the wrist. His "dream machine" detects changes in breathing rate (which accompany the onset of REM) and then automatically delivers a shock to the wrist (Hearne 1990).

Meanwhile, in California, LaBerge was rejecting taped voices and vibrations and working instead with flashing lights. The original version was laboratory based and used a personal computer to detect the eye movements of REM sleep and to turn on flashing lights whenever the REMs reached a certain level. Eventually, however, all the circuitry was incorporated into a pair of goggles. The idea is to put the goggles on at night, and the lights will flash only when you are asleep and dreaming. The user can even control the level of eye movements at which the lights begin to flash.

The newest version has a chip incorporated into the goggles. This will not only control the lights but will store data on eye-movement density during the night and when and for how long the lights were flashing, making fine tuning possible. At the moment, the first users have to join in workshops at LaBerge's Lucidity Institute and learn how to adjust the settings, but within a few months he hopes the whole process will be fully automated. (See LaBerge's magazine, *DreamLight*.)

LaBerge tested the effectiveness of the Dream Light on 44 subjects who came into the laboratory, most for just one night. Fifty-five percent had at least one lucid dream and two had their first-ever lucid dream this way. The results suggested that this method is about as successful as MILD, but using the two together is the most effective (LaBerge 1985).

Lucid Dreams as an Experimental Tool

There are a few people who can have lucid dreams at will. And the increase in induction techniques has provided many more subjects who have them frequently. This has opened the way to using lucid dreams to answer some of the most interesting questions about sleep and dreaming.

How long do dreams take? In the last century, Alfred Maury had a long and complicated dream that led to his being beheaded by a guillotine. He woke up terrified, and found that the headboard of his bed had fallen on his neck. From this, the story goes, he concluded that the whole dream had been created in the moment of awakening.

This idea seems to have got into popular folklore but was very hard to test. Researchers woke dreamers at various stages of their REM period and found that those who had been longer in REM claimed longer dreams. However, accurate timing became possible only when lucid dreamers could send "markers" from the dream state.

LaBerge asked his subjects to signal

when they became lucid and then count a ten-second period and signal again. Their average interval was 13 seconds, the same as they gave when awake. Lucid dreamers, like Alan Worsley, have also been able to give accurate estimates of the length of whole dreams or dream segments (Schatzman, Worsley, and Fenwick 1988).

Dream Actions

As we watch sleeping animals it is often tempting to conclude that they are moving their eyes in response to watching a dream, or twitching their legs as they dream of chasing prey. But do physical movements actually relate to the dream events?

Early sleep researchers occasionally reported examples like a long series of left-right eye movements when a dreamer had been dreaming of watching a ping-pong game, but they could do no more than wait until the right sort of dream came along.

Lucid dreaming made proper experimentation possible, for the subjects could be asked to perform a whole range of tasks in their dreams. In one experiment with researchers Morton Schatzman and Peter Fenwick, in London, Worsley planned to draw large triangles and to signal with flicks of his eyes every time he did so. While he dreamed, the electromyogram, recording small muscle movements, showed not only the eye signals but spikes of electrical activity in the right forearm just afterward. This showed that the preplanned actions in the dream produced corresponding muscle movements (Schatzman, Worsley, and Fenwick 1988).

Further experiments, with Worsley kicking dream objects, writing with umbrellas, and snapping his fingers, all confirmed that the muscles of the body show small movements corresponding to the body's actions in the dream. The question about eye movements was also answered. The eyes do track dream objects. Worsley could even produce slow scanning movements, which are very difficult to produce in the absence of a "real" stimulus (Schatzman, Worsley, and Fenwick 1988).

LaBerge was especially interested in breathing during dreams. This stemmed from his experiences at age five when he had dreamed of being an undersea pirate who could stay under water for very long periods without drowning. Thirty years later he wanted to find out whether dreamers holding their breath in dreams do so physically as well. The answer was yes. He and other lucid dreamers were able to signal from the dream and then hold their breath. They could also breathe rapidly in their dreams, as revealed on the monitors. Studying breathing during dreamed speech, he found that the person begins to breathe out at the start of an utterance just as in real speech (LaBerge and Dement 1982a).

Hemispheric Differences

It is known that the left and right hemispheres are activated differently during different kinds of tasks. For example, singing uses the right hemisphere more, while counting and other, more analytical tasks use the left hemisphere more. By using lucid dreams, LaBerge was able to find out whether the same is true in dreaming.

In one dream he found himself flying over a field. (Flying is commonly associated with lucid dreaming.) He signaled with his eyes and began to sing "Row, row, row your boat. . . ." He then made another signal and counted slowly to ten before signaling again. The brainwave records showed just the same patterns of activation

that you would expect if he had done these tasks while awake (LaBerge and Dement 1982b).

Dream Sex

Although it is not often asked experimentally, I am sure plenty of people have wondered what is happening in their bodies while they have their most erotic dreams.

LaBerge tested a woman who could dream lucidly at will and could direct her dreams to create the sexual experiences she wanted. (What a skill!) Using appropriate physiological recording, he was able to show that her dream orgasms were matched by true orgasms (LaBerge, Greenleaf, and Kedzierski 1983).

Experiments like these show that there is a close correspondence between actions of the dreamer and, if not real movements, at least electrical responses. This puts lucid dreaming somewhere between real actions, in which the muscles work to move the body, and waking imagery, in which they are rarely involved at all. So what exactly is the status of the dream world?

The Nature of the Dream World

It is tempting to think that the real world and the world of dreams are totally separate. Some of the experiments already mentioned show that there is no absolute dividing line. There are also plenty of stories that show the penetrability of the boundary.

Alan Worsley describes one experiment in which his task was to give himself a prearranged number of small electric shocks by means of a machine measuring his eye movements. He went to sleep and began dreaming that it was raining and he was in a sleeping bag by a fence with a gate in it. He began to wonder whether he was dreaming and thought it would be cheating to activate the shocks if he was awake. Then, while making the signals, he worried about the machine, for it was out there with him in the rain and might get wet (Schatzman, Worsley, and Fenwick 1988).

This kind of interference is amusing, but there are dreams of confusion that are not. The most common and distinct are called false awakenings. You dream of waking up but in fact, of course, are still asleep. Van Eeden (1913) called these "wrong waking up" and described them as "demoniacal, uncanny, and very vivid and bright, with . . . a strong diabolical light." The French zoologist Yves Delage, writing in 1919, described how he had heard a knock at his door and a friend calling for his help. He jumped out of bed, went to wash quickly with cold water, and when that woke him up he realized he had been dreaming. The sequence repeated four times before he finally actually woke up—still in bed.

A student of mine described her infuriating recurrent dream of getting up, cleaning her teeth, getting dressed, and then cycling all the way to the medical school at the top of a long hill, where she finally would realize that she had dreamed it all, was late for lectures, and would have to do it all over again for real.

The one positive benefit of false awakenings is that they can sometimes be used to induce out-of-body experiences (OBEs). Indeed, Oliver Fox (1962) recommends this as a method for achieving the OBE. For many people OBEs and lucid dreams are practically indistinguishable. If you dream of leaving your body, the experience is much the same. Also recent research suggests that the same people tend to have both lucid

dreams and OBEs (Blackmore 1988; Irwin 1988).

All of these experiences have something in common. In all of them the "real" world has been replaced by some kind of imaginary replica. Celia Green, of the Institute of Psychophysical Research at Oxford, refers to all such states as "metachoric experiences."

Jayne Gackenbach, a psychologist from the University of Alberta, Canada, relates these experiences to UFO-abduction stories and near-death experiences (NDEs). The UFO abductions are the most bizarre but are similar in that they too involve the replacement of the perceived world by a hallucinatory replica.

There is an important difference between lucid dreams and these other states. In the lucid dream one has insight into the state (in fact that defines it). In false awakening, one does not (again by definition). In typical OBEs, people think they have *really* left their bodies. In UFO "abductions" they believe the little green men are "really there"; and in NDEs, they are convinced they are rushing down a real tunnel toward a real light and into the next world. It is only in the lucid dream that one realizes it is a dream.

I have often wondered whether insight into these other experiences is possible and what the consequences might be. So far I don't have any answers.

Waking Up

The oddest thing about lucid dreams—and, to many people who have them, the most compelling—is how it feels when you wake up. Upon waking up from a normal dream, you usually think, "Oh, that was only a dream." Waking up from a lucid dream is more continuous. It feels more real, it feels as though *you* were conscious in the dream. Why is this? I think the reason can be found by looking at the mental models the brain constructs in waking, in ordinary dreaming, and in lucid dreams.

I have previously argued that what seems real is the most stable mental model in the system at any time. In waking life, this is almost always the input-driven model, the one that is built up from the sensory input. It is firmly linked to the body image to make a stable model of "me, here, now." It is easy to decide that this represents "reality" while all the other

models being used at the same time are "just imagination" (Blackmore 1988).

Now consider an ordinary dream. In that case there are lots of models being built but no input-driven model. In addition there is no adequate self-model or body image. There is just not enough access to memory to construct it. This means, if my hypothesis is right, that whatever model is most stable at any time will seem real. But there is no recognizable self to whom it seems real. There will just be a series of competing models coming and going. Is this what dreaming feels like?

Finally, we know from research that in the lucid dream there is higher arousal. Perhaps this is sufficient to construct a better model of self. It is one that includes such important facts as that you have gone to sleep, that you intended to signal with your eyes, and so on. It is also more similar to the normal waking self than those fleeting constructions of the ordinary dream. This, I suggest, is what makes the dream seem more real on waking up. Because the *you* who remembers the dream is more similar to the *you* in the dream. Indeed, because there was a better model of *you*, *you* were more conscious.

If this is right, it means that lucid dreams are potentially even more interesting than we thought. As well as providing insight into the nature of sleep and dreams, they may give clues to the nature of consciousness itself.

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Nature Faking In the Humanities

ERNEST GALLO

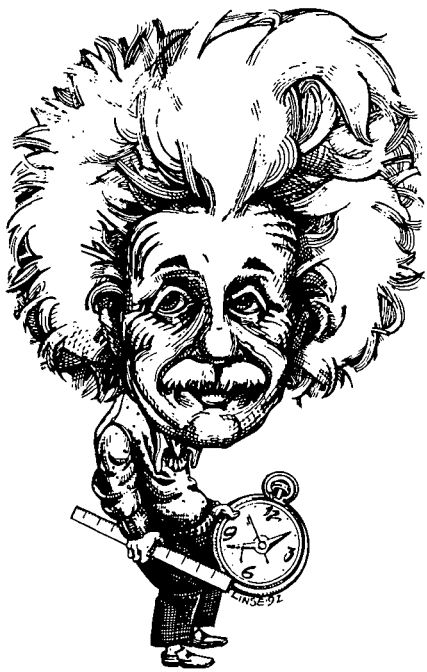
There is a new irrationalism abroad in the academy. It flourishes among certain humanists who attempt to find close ties between the humanities and the sciences. They do so not by making their own methods more rigorous, but by supposing the scientific method to be extremely arbitrary. In addition they reinterpret scientific theories in impressionistic ways. The theory is taken to be a metaphor. In the process, the scientific theory undergoes serious distortion.

When scientific theory is applied to literary criticism not simply as offhand embellishment but as the basis for a reasoned argument, the theory has to be stretched to fit this new and unaccustomed purpose. The scientific theory is characteristically interpreted as very loose and ambiguous in meaning—loose enough to produce self-contradiction and paradox.

In the following remarkable example, the straightforward concept of *degrees of freedom* is made to bristle with paradox:

> Now, the One I speak of, like the unnamable, unthinkable *Tao*, must be construed as simultaneously Order *and* Chaos. For example, in a uni-dimensional system each element has only one degree of freedom: back and forth along a line. In a two-dimensional system, or a plane, two degrees of freedom are possible, and in a many-dimensional system, many. As these systems become more complex, greater freedom is allowed and concomitantly there are fewer constraints. It follows, therefore, that in a system of infinite dimensions, there must be total freedom, and complete unpredictability, or randomness, must prevail. But if this is the case, we have, once again, reverted to chaos; the original One. That is to say, the infinitely structured (ordered) system is

Uniting the humanities and the sciences on the basis of their supposedly shared nonrationalism does honor to neither.



synonymous with an infinitely unstructured (disordered) system. . . . Therefore, play *is* and *is not* free. (Merrell 1985)

In fact the concept of degrees of freedom generates no such paradox. Merrell argues that the more dimensions we measure, the more we create a measureless chaos. By this account, three-dimensional space is inherently more chaotic than two-dimensional space. The author does not pause to consider that if our three-dimensional bodies were inherently less structured than, say, the two-dimensional pages of our evening newspaper, we would all be in deep trouble. The straightforward concept of the degrees of freedom of a physical system implies no such self-destructive content.

The distortions of science I am discussing all share a family resemblance: a well-defined theory that makes sharp and hard-edged assertions is made to appear creatively foggy and inexact. The world it describes loses objective form and is no longer rationally analyzable. Consider what happens to the Special Theory of Relativity at the hands of the deconstructionists. Deconstruction holds that texts only pretend to have meaning: on careful examination, texts supposedly fall apart into a heap of self-contradictory statements. This is not the place to argue the merits of such a remarkable notion. Our question is whether that notion is supported by modern science. Jacques Derrida, the dean of deconstruction (who taught philosophy at Ecole Normale Superieure in Paris for 30 years), has no doubts that the world of physics is just as unsettling as the world of texts. In the following dialogue, Jean Hyppolite has just objected that amid the surprising paradoxes of Einstein's universe there is at least one constant: the velocity of light. Derrida (1970) has no patience with such heresy:

Jacques Derrida: The Einsteinian constant is not a constant, is not a center. It is the very concept of variability—it is, finally, the concept of the game. In other words, it is not the concept of some*thing*—of a center starting from which an observer could master the field—but the very concept of the game. . . .

Hyppolite: It is a constant in the game?

Derrida: It is *the* constant of the game.

Hyppolite: It is the rule of the game.

Derrida: It is a rule of the game which does not govern the game: it is a rule of the game which does not dominate the game. Now, when the rule of the game is displaced by the game itself, we must find something other than the word *rule*.

In short, the world of physics is rule-free—that is, totally arbitrary and subject to the whim of the observer. Einstein showed that the velocity of light in a vacuum is a constant totally independent of the velocity of the observer. For example, if you move toward a light beam, the velocity of closure is the velocity of light, no matter how fast you may be traveling. This remarkable fact, which Derrida waves away so casually, is the basis for the Special Theory.

To be sure, Einstein showed that the coordinate axes that measure the position and time of an event can expand and contract like rubber bands, depending on who is doing the measuring. Aha, concludes Derrida, so the system is rule-free and chaotic. But this conclusion is quite false. Relativity says nothing about subjective judgment. Einstein himself complained that the theory was misnamed: he suggested that it be called the Theory of Invariance. The measurements of space and time—taken separately—vary according to the observer; but measurement of the so-called interval in space-time is absolutely invariant and remains the same for any observer anywhere in the universe. It is that interval that is the quantity of interest. The Special Theory says precisely nothing about whether or not there are invariables in a text. Derrida may believe that texts are meaningless and hence cannot be analyzed: Einstein hardly believed the same about the universe. The Lord, he said, is subtle but not malicious.

Note that neither Merrell nor Derrida pauses to consider this question: Why on earth should a theory about the behavior of matter in space tell us *anything* about the behavior of words on a page?

Both the General and Special Theories have been pressed into strange service. The cultural historian Marshall McLuhan felt that Einstein had rescued us from the fragmentation of knowledge and sensibility brought on by the pernicious invention of printing. "With this recognition of curved space in 1905,[1] the Gutenberg galaxy was officially dissolved. With the end of lineal specialisms and fixed points of view, compartmentalized knowledge became as unacceptable as it had always been irrelevant" (McLuhan 1962). Einstein, McLuhan said, leads us back to a happier, more primitive age when sensibilities were unified: "A modern physicist with his habit of 'field' perception, and his sophisticated separation from our conventional habits of Newtonian space, easily finds in the pre-literate world a congenial kind of wisdom" (McLuhan 1962).[2] For Derrida, the world of Relativity is incoherent and rule-free; for McLuhan, it is coherent and integrated. You pay your money and you take your choice.

Science has become increasingly abstract and independent of simple visual models. But the unvisualizable

is too easily mistaken for the vaguely mystical. McLuhan explicitly associates the visual with the mechanical, Newtonian world, which he wants to see abolished by the holistic spirit of Relativity. This travesty has become widespread: Newton is facilely appointed as the enemy, the proponent of a world that, because it is mechanical, is without heart or feeling. Newton's absolute space is thought to promote a cold authoritarianism that denies us our private visions,[3] whereas the private observer of Relativity—or for that matter the quantum world—still counts for something.

Newton's *Principia* is usually described as the most important single scientific work ever published. One critic, however, describes it as a "rape manual"—for the reasons sketched above (Harding 1986).

There are other examples. Information theory tells us that the content of information increases with the unexpectedness of the signal; from this a film critic concludes that all films are worthless that do not present radical (hence unexpected) social messages. Repetition of outworn conservative social messages creates a kind of social entropy (Youngblood 1970). Gödel's undecidability theorem tells us that in a sufficiently powerful deductive system there will be true theorems that the system can neither prove nor disprove. One literary critic argues that this situation is exactly parallel to an instance where a poem defies interpretation since the sequence of stanzas is uncertain (Stegmüller 1988).

The free associations go on and on.

Modern science grows less and less anthropocentric. It strives for viewpoints that are independent of any privileged observer. It is highly ironic that some humanists conclude that science currently promotes a rule-free subjectivism. It is true that hypothesis formation in the sciences is far more tentative than the positivists used to believe: Einstein (and others) pointed out that hypotheses are not uniquely specified by the data.[4] But it is wrong to conclude that science has become mystical or irrational either in its methods or in its conclusions.

There is a new irrationalism abroad, one that assumes that the humanities and the sciences are equally nonrational. I am not sure that this kind of grand unification is a cause for rejoicing; yet this position has become all but canonical. Its academic respectability makes it dangerous. Fortunately, this position is coming under criticism (Livingston 1988; Seung 1988). It is none too soon. Uniting the humanities and the sciences on the basis of their supposedly shared irrationalism does honor to neither.

Notes

1. McLuhan confuses the General Theory (1915) with the Special Theory (1905).

2. So-called primitive people endow specific areas of their territory with religious significance; McLuhan imagines a parallel with variations in the local curvature of space in the General Theory.

3. In the ranks of villainy Euclid ranks as a close second. His world is over-rational; McLuhan prefers the mysteriously curved space of Einstein. Similarly, three-dimensional space is "linear" and rational: but in *n*-dimensional vector space, the spirit is free and unconfined. Einstein's curved space and multidimensional vector space, each being unvisualizable, come to represent the world of the heart and the nonrational. (It is not surprising that McLuhan confuses these two quite distinct spaces.)

4. Kuhn's *Structure of Scientific Revolutions* has had a major influence; it is fair to say it has been in some respects heavily misinterpreted. See also Lakatos 1970.

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A Reminder . . .

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Carrying the War Into the Never-Never Land of Psi

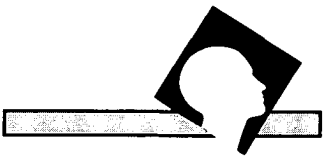
Part II

SAMUAL T. GILL

In Part I of this article (Spring 1991), I pointed out that advocates of reason can squarely confront proponents of the paranormal on their own ground—and win. I emphasized the need to state your quest in positive terms: you are looking for convincing evidence that claimants can do what they say they can do. And I listed ten of the barricades, or smoke-screens, claimants and their disciples typically raise and suggested how you might respond.

Once you've clambered over these routine barricades to inquiry, somebody is sure to ask something like "OK, Mr. Know-it-all, why don't you tell us what good evidence is then, if you're so smart?"

As it happens, you *are* so smart, and you are prepared to explain the difference between an *untestable* theory like, say, reincarnation, which is not a very likely subject for experimentation and has to be taken or rejected pretty much on faith, and a *testable* idea like extrasensory perception (ESP), where experimentation can be done quite quickly and easily. This is when you explain the rigorous scientific standard of proof: the *repeatable experiment under controlled conditions.* This is your chance to differentiate between what we take on *faith* (a religion) and what we believe based on the *evaluation of evidence* (science). Again, you are after positive evidence in favor of an idea. You are not out to disprove something by negative evidence or debunking. No claim should be rejected out of hand—or accepted beforehand, either.



Ask people for their best evidence. You can be ready with a number of small, simple, quick, easy-to-understand tests, or a few pointed questions.

Now, you will say, we've all heard claims that the "teacher" can do PK (psychokinesis) or go out-of-body or find objects by dowsing or predict the future. Let's see if this is true right now. Can people really do these things or is it more likely they just imagine they can? When we see these things demonstrated without controls, is it more likely that the miracle-worker has special powers or that he or she just knows a trick we don't? How many think we can't be fooled? Ask for a show of hands.

"Oh," your guru will say, modestly, "I've often been tested in the past. (The professors were baffled of course, but that proves nothing.) But my powers are tuned to very delicate vibrations. I cannot use them for frivolous demonstrations, and, of course, I eschew mere personal gain."

"I'm glad to hear it," you respond. You then pass around the following handout, which you just happen to have handy:

> People who claim psychic gifts, PK powers, dowsing skills, etc., are unanimous in stating that such talents cannot be used for "personal gain" or "frivolous demonstrations." But wouldn't it be wonderful if such boons could be harnessed in the everyday world, for the benefit of all?
>
> The all-volunter, nonprofit New Age Child Abuse, Crime, Accident & Disaster Prevention Center is now recruiting a Psi Strikeforce to do just that! The Strikeforce is looking for caring, committed volunteers to predict and alleviate crime, accidents, and child abuse *before* it happens, to alert disaster relief agencies to be on hand when tragedy strikes, to dowse for drug-runners, heal the environment with PK, diagnose AIDS carriers, work for peace, and save the whales. These are not frivolous causes; no personal gain is involved. Of course, to establish credibility and exclude cranks, the Strikeforce must employ only the most gifted and skilled, so rigorous tests of claimed abilities will be conducted.
>
> If you know someone who claims such talents, or if *you* have them yourself, won't you come forward? The NACACA&DPC doesn't want your money, only your abilities in a worthy cause. Won't *you* help this innocent child?

"The 'Why do you believe?' or the 'What's the evidence in favor?' paradigm can be used successfully in confronting almost any irrational belief system."

You include, of course, a picture of the most wistful child you can find.

"Now," you ask, "why can't you show us? I thought psi people were all in favor of these celestial causes. Are you not in sympathy with the Strikeforce's aims? Are you too lazy to volunteer? Too selfish? Or are parlor tricks all you can do?"

If the claimant has not by now left in a screeching huff, he or she will mumble something about how "cumbersome" and "time-consuming" experiments are. This is your next opening, because, out in the car, in a shoe box or grocery sack, you just happen to have with you a number of small, simple, portable, quick, easy-to-understand, and conclusive tests of a number of commonly claimed psi abilities. It's important to be ready with experiments (on talk-shows, in classes, or for chance encounters), because your claimant will take care never to let you have a crack at him or her again.

Can your "psychic" do PK? You can

find out one way or the other (and show a class) by constructing the following apparatus: Drive a nail into a small piece of wood, slip a brass washer or gummed paper reinforcement over the nail so that it can move freely up and down, up-end a shot glass or juice glass over the nail and seal the glass rim to the wood with school glue. Set your device on the table and have the guru use PK to defy gravity by lifting the washer up the nail without touching the glass. Encourage the class to focus their psi energies to help.

Has the guru regularly and successfully predicted the future before? Great! Let's have a test specific enough to check. You're a sports fan and out in the car you've got one of those throwaway baseball schedules with the dates of the games marked. Have the guru pick an astrologically favorable date, look into the future, and tell the class the winning pitcher and the score we'll be seeing.

Is the claimant a practiced out-of-body tripper? Wouldn't you like to learn how? Sure you would, but first let's see if the claimant can really take these trips or just has a vivid imagination. Out in the car you have a sealed shoe-box with one of those rotating desk calendars fixed inside. There's a number you don't know showing on the calendar face. All you want your ethereal traveler to do is waft into the box and tell the class what number is up, before the box is opened to check.

Does your claimant diagnose people's ills psychically? A practical, prudent consumer might want to test such claims before passing up that biopsy. So, without offering any hints, have everybody in the room ask a few yes-or-no, short-answer questions, such as: Do I have my appendix? My tonsils? My wisdom teeth? How many? Am I menstruating now? Have I had a vasectomy? A hysterectomy? Any kind of operation? What kind? Do I have any scars? Where? Give no feedback until the exercise is over. Remind the class that the odds of getting correct answers by just guessing are pretty high. If there are *any* wrong answers on such simple issues, what confidence can be placed in more complex diagnostic advice?

Can your claimant find things by dowsing for them? You can check by gluing two or three of those 7-day pill-reminder boxes onto a 12-inch ruler, hiding a small object (a "healing crystal" is good) in one compartment, and then asking the dowser to tell you where the object is located. Surely a dowser who can find (as they always claim) water or even oil a thousand miles away on a map won't have any trouble with this dinky little double-blind test?

A variation on this apparatus is useful in testing those who claim to see auras, too. Close all the compartments part way, but leave enough of an opening in each so an aura from a small object can shine out (that is, so it can shine out if, indeed, there is such a thing—again, a healing crystal or similar psionic talisman will be handy here). Your guru will claim to be able to see beautiful, vibrant auras around everything and everybody in plain sight, I assure you. And, if he or she can see correctly the one in your concealed test, maybe you're on to something.

There are other common confrontations you can seek out as well. You may be called upon, for instance, to debate an astrologer. Astrology is scientific jargon without the scientific method. Indeed, in astrology, the jargon *is* the science, so don't get into a discussion of trines and squares and rising conjunctions, the precession of the equinoxes, or the plane of the ecliptic. Nobody understands this

stuff and your everyday astrologer probably won't have too good a grasp of it either. There are, however, a couple of questions you can ask that will demolish any pretense to scientific respectability or expertise on the part of the astrologer even in his or her own craft. *How* do astrologers know (for example) that Mars controls anger, or Venus rules love? *Who* found these things out? *When* did they do it? *What* experimental method was used? *Where* is the record of these experiments to be found? This is (or, you would think, surely should be) Basic Astrology 101, so press for specifics while your astrology "expert" puffs and stammers. After 90 seconds of blather, ask if astrologers need the accurate birth *minute* to correctly cast a horoscope. Yes, you will be told, minutes count in determining a precise chart; twins can be totally different; the Code of Ethics of the American Federation of Astrologers states that an "opinion cannot honestly be rendered" without "the time of the day"; an error of a few moments may mean an opposite opinion; and so on.

And are these horoscopes accurate? Or inaccurate? "Very accurate," your astrologer will affirm. "Many people rate them exactly correct."

Now think about that. If *minutes* count so heavily and the main source of the birth minute is a birth certificate, how did astrologers cast accurate horoscopes *before* birth certificates? Before watches? How do they possibly ever get the accurate minute to do it now, since mistakes are made and clocks are off even in this technological age? And if minutes are so important, how can a horoscope *ever* be accurately cast? If minutes count, wouldn't they be very *in*accurate? When is the astrologically precise "time of birth"? Crowning? First cry? The cutting of the umbilical cord? And who in the delivery room is charged with recording the precise astrological moment for posterity anyway?

There's something mysterious about near-death experiences that excites occultists, too. When you ask NDE fans about evidence in favor of their belief, you will often be referred to the growing number of books recording similar experiences by those whose hearts stopped for a while and were later jump-started. The similarity of the stories proves that they are all true, your occultists will say, in a burst of non-sequitur logic. Since this is the only evidence in favor of the idea, and it's widely viewed as conclusive by proponents, it's easy for you to move on and ask your second standard question: Is that evidence any good?

A couple of pointed questions will show that these stories are very low-grade stuff indeed. When, you will ask, were these stories gathered? Did the researcher just happen to be on hand when the storyteller came out of the oxygen tent in the intensive-care unit? Even if so, what possible reliance can be placed on such dazed, drugged, secondhand testimony? Or was the story told to the researcher only years after the event, after contamination by similar tales? This is the sort of uncompelling testimony that would probably not be considered conclusive even in a court of law, much less before the more rigorous standards of science. The contention is a good opportunity to demonstrate why the *quality* of evidence is so important in inquiry.

You also could join your local true-believer society. It probably publishes a newsletter, offers pro-psi classes, and perhaps sponsors meetings or an annual convention where the faithful gather. Attend these gatherings. You could offer classes yourself. You could set up a booth at the annual fair. You

could write copy for the newsletter. Your name will become known. You will act as a needle in a balloon factory until the locals catch on that the think-for-yourself process you are encouraging is dangerous to their authority. Authority will then exert itself to prevent you from communicating at all, but this arbitrary exercise of power will itself shake the certainty of the organization, and they won't be able to keep you out of meetings open to the public anyway. Pass out leaflets. Ask pointed questions. Bring your own hand-mike so you can be heard when the chair refuses to recognize you. Be patient, and diligent. There are plenty of activities where you can act as a voice of reason and common sense. Remember that psi claims can't stand up to free inquiry and that muzzling you will offend the sense of fair play that is probably strong in even the most benighted true believer.

One of the activities I did myself was to dig out the old files of the local newsletter regarding annual "psychic" predictions made by hometown gurus who aspire to be quoted in the *National Enquirer*'s New Year's edition. It was instructive to review all of these, eliminate those predictions that were self-fulfilling, repeaters, good bets, right either way, too nonspecific to check, based on insider information, or posed as a question, and *then* to check the shrunken remainder for accuracy. A useful activity for subsequent annual prediction meetings is to remind "prophets" of their dismal showing last year. Keeping score disallows exaggerated claims. You have to be patient, but you have something to look forward to as well.

Your native wit will probably aid you in spontaneous encounters. I once attended a class on psi powers that turned out to be a thinly disguised faith-healing promo. (Most of these are.) The guru created a "healing ball of light" in her hands, passed it around the hushed circle a couple of times, and then asked people to describe what they felt. Cool, tingly, throbbing, warm and fuzzy, the participants said—until it came my turn. I had not passed it on when it came around the *first* time, I said. In fact, I still had the little ball in my fist, and I wondered what pantomime the group had been acting out by reverently passing nothing from hand to hand?

I was shown the door at this point, but the guru got angry, destroying the persona that was her stock-in-trade. This particularly offensive class has not been offered again, so it was worth a little personal turmoil. You've got to have a little brass yourself if you're going to combat brazen assaults on common sense.

The "Why do you believe?" or the "What's the evidence in favor?" paradigm can be used successfully in confronting almost any irrational belief system, from UFOs to the Bermuda Triangle. It places the burden of proof squarely on the claimant, where it should be, and compels the discussion to follow rational guidelines if it is not to lapse into acknowledged religious revelation. Believers will be compelled to (1) offer their evidence for review as the puerile stuff it is, (2) admit they have no evidence but only an irrational conviction, or (3) maunder off into sullen gibberish. In all cases the cause of reason is advanced. Thoughtful people—and even those who aren't very thoughtful—hearing or taking part in such exchanges, will have to acknowledge, if only to themselves, the glimmer of doubt that is the all-important first step toward rational thinking and reevaluation of cherished dogma. Forcing home this realization, even if only privately, is an outstanding victory.

And there is another triumph that will be more immediately apparent.

After challenging these dogmas, claimants will want to avoid confrontations with you. Their presentations will tend to be more guarded, their appearances fewer and less well publicized, their audiences smaller. Reduction in the sheer volume of nonsense flooding the world is another worthwhile gain.

The published principles of CSICOP indicate that a researcher does not "reject claims on *a priori* grounds, antecedent to inquiry, but rather examines them objectively and carefully." When these principles are followed, it is apparent that psi claims evaporate rapidly. True believers can easily resist any simple denial of their claims; they are helpless when these claims are taken at face value and scrutinized under the same rules to which all science is subject.

It's worth the effort. Give it a try.

Samual T. Gill lives in Kansas City, Missouri, and is a member of the Kansas City Committee for Skeptical Inquiry.

Why Learn About Science?

It is beyond argument that our most generously educated citizens, our college graduates, are grossly undereducated when it comes to science and technology, even "ignorant"—to use Leon Lederman's characterization. But there is no consensus at all when it comes to what to do about it, no common view of just what it is that our citizens ought and need to know about science, and no common view as to how whatever it is they ought to know can and should be taught.

With regard to what our goals should be, perhaps we can all accept something along the following lines: Our goal is to assure that our citizens know enough about science:

—so that they can tell the difference between sense and nonsense, between science and pseudoscience

—so that they can distinguish the possible from the impossible, the probable from the improbable

—so they can understand both the powers and the limits of science and technology

—so they are not at the mercy of experts—or worse, of charlatans posing as experts

—so they can be participants, not victims, in our increasingly and irreversible technological society.

—David S. Saxon, Honorary Chairman of the Corporation, Massachusetts Institute of Technology, and President, Emeritus, of the University of California, in a paper presented at the AAAS, Washington, February 17, 1991

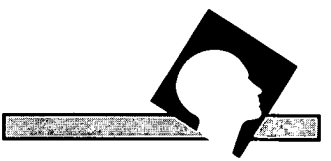
Coincidences

JOHN ALLEN PAULOS

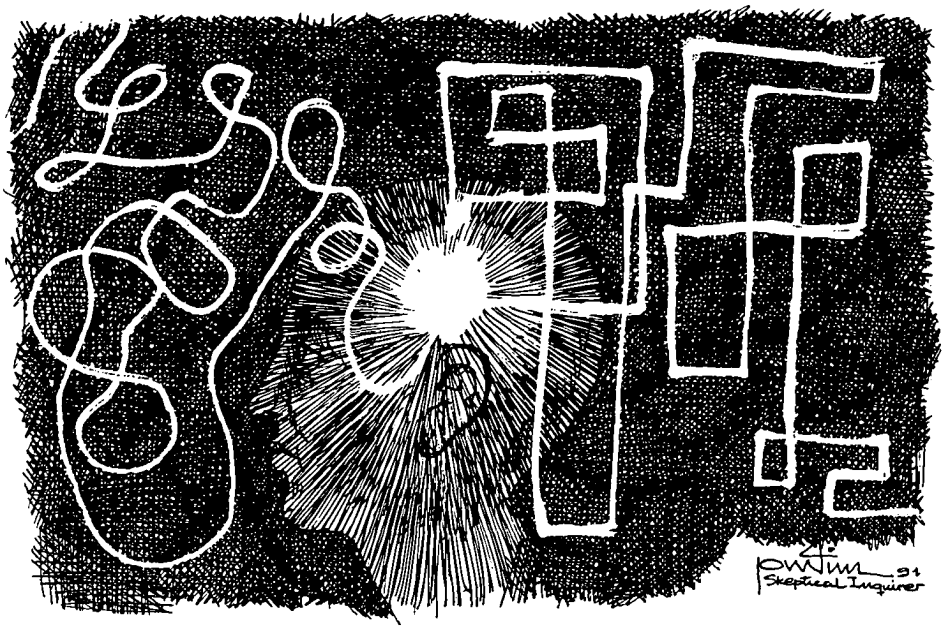
Coincidences fascinate us. They seem to compel a search for their significance. More often than some people realize, however, they are to be expected and require no special explanation. Surely no cosmic conclusions may be drawn from the fact that I recently and quite by accident met someone in Seattle whose father had played on the same Chicago high-school baseball team as my father had and whose daughter is the same age and has the same name as my daughter. As improbable as this *particular* event was, that *some* event of this vaguely characterized sort should occasionally occur is very likely.

More precisely it can be shown, for example, that if two Americans sit next to each other on an airplane, more than 99 times out of 100 they will be linked in some way by two or fewer intermediates. (The linkage with my father's classmate was more striking. It was via only one intermediate, my father, and contained other elements.) Maybe, for example, the cousin of one of the passengers will know the other's dentist. Most of the time people won't discover these links, since in casual conversation they can't run through all their 1,500 or so acquaintances as well as all their acquaintances' acquaintances. (I suppose with laptop computers becoming more popular they could compare their own personal databases and even those of people they know. Perhaps exchanging databases might soon be as common as leaving a business card. Electronic networking. Hellacious.)

There is a tendency, however, to home in on likely co-acquaintances. Such connections are thus discovered frequently enough that the squeals of amazement that commonly accompany their discovery are unwarranted. Similarly unimpressive is the "prophetic" dream, which traditionally comes to light after some natural



What are the chances that some "amazing" coincidences will occur? Far greater than you might think.



disaster has occurred. Given the half-billion hours of dreaming each night in this country—two hours a night for 250 million people—we should expect as much.

Or consider the famous birthday problem in probability theory. One must gather together 367 people (one more than the number of days in a leap year) in order to ensure that 2 of them share a birthday. But if one is willing to settle for a 50-50 chance of this happening, only 23 people need be gathered. Rephrasing, I note that if we imagine a school with thousands of classrooms each of which contains 23 students, then approximately half of these classrooms will contain 2 students who share a birthday. No time should be wasted trying to explain the meaning of these or other coincidences of similar type. They just happen.

One somewhat different example concerns the publisher of a stock newsletter who sends out 64,000 letters extolling his state-of-the-art database, his inside contacts, and his sophisticated econometric models. In 32,000 of these letters he predicts a rise in some stock index for the following week, say, and in 32,000 of them he predicts a decline in that same index. Whatever happens he sends a follow-up letter, but only to those 32,000 to whom he's made the correct "prediction." To 16,000 of them he predicts a rise in that index for the next week, and to 16,000 a decline. Again, whatever happens he will have sent two consecutive correct predictions to 16,000 people. Iterating this procedure of focusing exclusively on the winnowed list of people who have received only correct predictions, he can create the illusion in them that he knows what he's talking about. After all, the 1,000 or so remaining people who have received six straight correct predictions (by coincidence) have a good reason to cough up the $1,000 the newsletter publisher requests: they want to continue to receive these "oracular" pronouncements.

I repeat that in discussing these and other coincidences it is useful to distinguish between generic sorts of events and particular events. Many

situations are such that the particular event that occurs is guaranteed to be rare—a certain individual winning the lottery or a specific bridge hand being dealt—while the generic outcome—someone's winning the lottery or some bridge hand being dealt—is unremarkable. Consider the birthday problem again. If all that we require is that two people have some birthday in common rather than any particular birthday, then 23 people suffice to make this happen with probability 1/2. By contrast, 253 people are needed in order for the probability to be 1/2 that one of them has a specific birthdate, say July 4. Particular events specified beforehand are, of course, quite difficult to forecast, so it's not surprising that predictions by televangelists, quack doctors, and others are usually vague and amorphous (that is, until the events in question have occurred, at which time the prognosticators like to assert that these precise outcomes were indeed foreseen).

This brings me to the so-called Jeane Dixon effect, whereby the few correct predictions (by psychics, disreputable stock newsletters, or whomever) are widely heralded, and the 9,839 or so false predictions made annually are conveniently ignored. The phenomenon is quite widespread and contributes to the tendency we all have to read more significance into coincidences than is usually justified. We forget all the premonitions of disaster we've had that *didn't* predict the future and remember vividly those couple that seemed to do so. Instances of seemingly telepathic thought are reported to everyone we know; the incomparably vaster number of times this doesn't occur is too banal to mention.

Even our biology conspires to make coincidences appear more meaningful than they usually are. Since the natural world of rocks, plants, and rivers doesn't seem to offer much evidence for superfluous coincidences, primitive man had to be very sensitive to every conceivable anomaly and improbability as he slowly developed science and its progenitor "common sense." Coincidences, after all, *are* sometimes quite significant. In our complicated and largely man-made modern world, however, the plethora of connections among us appears to overstimulate many people's inborn tendency to note coincidence and improbability and lead them to postulate causes and forces where there are none. People know more names (not only family members', but also those of colleagues and a myriad of public figures), dates (from news stories to personal appointments and schedules), addresses (whether actual physical ones or telephone numbers, office numbers, and so on), and organizations and acronyms (from the FBI to the IMF, from AIDS to ASEAN) than ever before. Thus, although it is a very difficult quantity to measure, the rate at which coincidences occur has probably risen over the past century or two. Still, for most of them it generally makes little sense to demand an explanation.

In reality, the most astonishingly incredible coincidence imaginable would be the complete absence of all coincidences.

Note

Brief derivations of birthday statements: (1) The probability of 2 people having different birthdays is 364/365; of 3 people having different birthdays, (364/365 × 363/365); of 4 people, (364/365 × 363/365 × 362/365); of 23, (364/365 × 363/365 × 362/365 × . . . × 342/365 × 343/365), which product turns out to equal 1/2. Thus the complementary probability that at least 2 people share a birthday is also 1/2 (one minus the above

product). (2) The probability someone does not have a July 4 birthday is 364/365; the probability neither of 2 people has a July 4 birthday is 364/365; the probability neither of 2 people has a July 4 birthday is $(364/365)^2$; none of 3, $(364/365)^3$, none of 253, $(364/365)^{253}$, which turns out to equal 1/2. Thus the complementary probability that at least one of the 253 people has a July 4 birthday is also 1/2, $1 - (364/365)^{253}$.

John Allen Paulos is professor of mathematics at Temple University and author of the best-selling Innumeracy *and of the just-published* Beyond Numeracy: The Ruminations of a Numbers Man *(Knopf, April 1991), from which this is published by permission.*

On the Nature of Physical Laws

We can measure the fundamental constants to precisions of $10^{-7} - 10^{-8}$ using the modern quantum techniques due to Brian Josephson and Klaus von Klitzing, and we can measure time using the wonderful technology of millisecond pulsar timing, to six orders of magnitude better than that. Any such precise measurement is a triumph of deterministic dynamics, as is the achievement of the almost unthinkable precision that brings beams of electrons and positrons together at LEP. The values of $\hbar/e^2$ and $e/\hbar$ do not depend on the mood of the experimenter, and evil thoughts do not prevent those beams from colliding. Recently the entire science of deterministic dynamics—misnamed "chaos" in the popular mind, but as we all know, more aptly called "deterministic chaos"—has very much bolstered our understanding that what goes on in the most apparently random physical systems, such as turbulent jets and convection cells as well as dice games and roulette wheels, is simply "sensitive dependence on initial conditions" acting in a perfectly deterministic system.

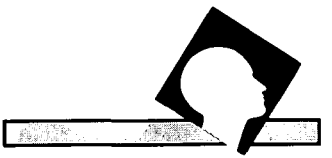
It is disturbing, then, that some who call themselves physicists set out seriously to test the effect of "thinking at them" on sensitive electrical measurements, on card-shuffling machines, or on bouncing ping-pong balls. It is much more disturbing to see positive results announced on the basis of statistical deviations at the few-σ level. The problem is, of course, the question of the consistency of the structure of physics: If such results are correct, we might as well turn the National Institute of Standards and Technology into a casino and our physics classes into séances, and give back all those Nobel Prizes, since the measuring apparatus with which we think we have been achieving all this precision can actually be bent out of shape at the behest of the first Uri Geller who comes along, and our vaunted precision is all in our heads.

—Philip W. Anderson, Joseph Henry Professor of Physics, Princeton University, from "On the Nature of Physical Laws, *Physics Today*, December 1990

Locating Invisible Buildings

MARK PLUMMER

The ability to locate invisible buildings with straightened-out coat-hangers is a most unusual skill. A Missouri woman, Karen Hunt, claims such an ability. She has been awarded a master of arts degree in anthropology from Indiana University for a thesis expounding and applying her theories, and an Australian state government authority paid for her roundtrip airfare to Australia to find invisible buildings. Hunt conducts workshops teaching her skills across the United States and Canada. Her publicity material for such a workshop in Greeley, Colorado, in 1987 stated: "Workshop participants will learn to locate, work and map site features no longer visible in the environment, such as the locations of former buildings (including floorplans with window and door positions), old fence lines, enclosures, gates, pathways, roadways, cisterns and graves—*without digging.*" The workshop was sponsored by the City of Greeley.



An examination of a woman's claim that she can locate sites and features of long-demolished buildings by detecting their "electromagnetic photo-fields."

Hunt claims that long-demolished buildings leave an electromagnetic photo-field (EMPF) that she can detect with divining rods made from straightened coat-hangers. She sets out her theory in her master's thesis accepted by Indiana University in 1981 and in her report to the Melbourne and Metropolitan Board of Works (MMBW), in Melbourne, Australia, in 1984.

> Electro-magnetic photo-fields (EMPFs) are those invisible, but detectible, three-dimensional patterns left in the space once occupied by man-made structures—structures which, in most cases, have been destroyed; EMPFs are also created as a result of man changing the environment, such as making a pathway, roadway, or digging a grave or other sub-surface features.

> When one of these man-made structures or changes to the environment is left in one place for six months or longer the space which it occupies is changed. The author's research (1981) indicates that it takes six months or more to create an EMPF, and that after that amount of time, the building or other structure, if removed or destroyed, will leave in its place an invisible, three-dimensional pattern which is detectible by very simple means and is measurable as to size and delineation.

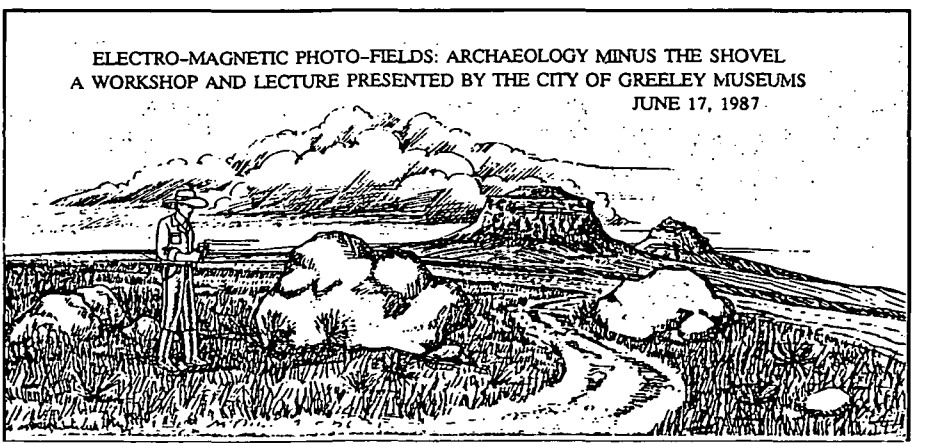
A simpler description of Hunt's invisible, three-dimensional pattern could be "an invisible building." She claims to have discovered EMPF archaeology in 1978.

I asked three Australian physicists, Ian Bryce, John Harries, and Dave Wheeler, to examine her theory. They told me that Hunt's EMPFs bear no resemblance to electromagnetic fields as understood by physicists. Such fields are well known and described by Maxwell's equations. Electromagnetic waves are traveling waves, with their component oscillating electric and magnetic fields being mutually at right angles to the line of travel and to each other. Electromagnetic waves are very common; they include light, heat, radiation, X-rays, radio waves, and microwaves—the difference between these being the frequency of oscillation. Electromagnetic waves travel at 300,000 kilometers a second in air or space. Thus any electromagnetic waves emitted by buildings in 1860 (if this were possible) would have passed Alpha Centauri, the star nearest to our solar system, in 1864!

For electromagnetic waves to be continually propagated requires a transmitter continually fed with energy. There are no known transmitters or energy sources associated with destroyed buildings.

Further absurdities appeared upon analysis of where the EMPFs reside. They cannot be connected with the soil since Hunt stated that "the pattern . . . cannot be destroyed . . . by removing the soil beneath it." It cannot be in the air, as the first wind would blow it away. This leaves only space itself. As the earth spins daily and revolves around the sun, all of Hunt's sites loop and whirl through the solar system with the earth. The idea of "fixed" electromagnetic fields is contrary to basic physics and all that is known about electromagnetic fields.

Hunt believes the change in the


ELECTRO-MAGNETIC PHOTO-FIELDS: ARCHAEOLOGY MINUS THE SHOVEL
A WORKSHOP AND LECTURE PRESENTED BY THE CITY OF GREELEY MUSEUMS
JUNE 17, 1987

Advertising brochure of the Department of Cultural Affairs, City of Greeley, Colorado.

electromagnetic field may result from the absorption or blocking out of minute particles from outer space or light with which the earth is constantly bombarded. She further claims that just as a negative ion is created when light strikes unexposed film in a camera, so apparently a photo-field or negative (pattern) is created on the earth's surface whenever a building or man-made object is allowed to rest upon or over the earth for six months or more.

She states that electric currents between the earth's atmosphere and the earth's crust, working on the magnetic fields, may be what creates the photo-field patterns by creating a magnetic, possibly ionized, area that causes a set of dowsing wires to react when the field is encountered.

However, the variations from place to place in the earth's magnetic field are well known and are regularly measured in the search for mineral deposits. The magnetic field indicates what is there now. When magnetometers are used to record variations in magnetic-field strength, it is found that the fields vary over periods from days to years, thereby suggesting that the establishment by currents and fields of permanent spatially extensive structures like the proposed photo-fields are quite unlikely.

If it is not magnetic fields but rather ionic areas, as she suggests, then Hunt would need to explain why there would be any ions left at all. If there were ions created that then hovered in space over some spot where a building had been, the created ions would be rapidly neutralized or blown away within minutes.

In order to create enough electrostatic force to move the dowsing wires, the magnetic field would need to be hundreds or even thousands of times larger than the strength of the earth's magnetic field. A compass would be a much more effective detection instrument.

She claims that the "electromagnetic photo sensors" can detect walls, fences, paths, and even cupboards that used to exist on the site, and yet she says that concrete paths, plants, ploughing, and surface excavation leave a pre-existing pattern intact. Her suggestion that patterns are made by some man-made objects and not others, and not by natural objects, is totally inconsistent. She would have us believe that natural wooden structures, such as trees, leave no trace, but wooden structures erected by builders leave traces.

The three physicists who examined Hunt's theories state that the explanations she presents for EMPF are not scientifically valid. Nor are her analogies to magnetometers and electric and magnetic fields helpful in terms of indicating the nature of the effect. Her master's thesis shows an ignorance of basic physics, the scientific method, and the scientific verification of theories.

In 1982, Hunt presented a paper at the annual meeting of the Association for Living Historical Farms and Agricultural Museums in Fredericton, New Brunswick, Canada, in which she wrote that "the major key [to the investigations for her M.A. thesis] was the field research using electromagnetic photo-field patterns."

Her thesis committee found her paper to be a useful contribution based on her investigations, irrespective of any methodological claims. But if the methodology was faulty then the results gained using that methodology, in my opinion, should not have been accepted.

There is, however, some distinction between the work in her thesis—where she had extensive knowledge of the history and architecture of the location—and her work in Australia

and other sites, where she attempted to apply her method with little or no local knowledge and almost no supporting evidence.

Hunt's Techniques

Having examined Hunt's theories we can now examine her techniques, which she sets out in her thesis.

Hunt uses a pair of ferrous metal coat-hangers, which she straightens and then bends down about seven inches from the end, forming a long L-shape. She calls these devices "electromagnetic photo sensors" and claims they work similarly to a proton magnetometer. A proton magnetometer is a complex instrument used in charting magnetic fields and bears no similarity to dowsing wires. For instance, a concentrated nickel deposit will have its own magnetic field, which will add to the earth's magnetic field, causing a local increase in intensity. A magnetometer will detect this increase and delineate the area containing the ore. It is this type of delineation ability that Hunt claims for her sensors. Magnetometers are indeed used in archaeological research in finding genuine remains like buried walls. However, there is a significant difference between a magnetometer and Hunt's wires. A magnetometer detects a known type of field (i.e., magnetic) and changes in the field caused by mechanisms proved to be associated with the items sought after (e.g., nickel deposits). However, Hunt claims her sensors detect an unknown field (an "EMPF") of unknown origin allegedly associated with an archaeological site.

In her thesis she sets out the methods she uses. Holding the wires, she walks across the ground until the wires spread apart, which indicates to her that an electromagnetic photo-field is traversed. If, after one pace, the wires swing back, this indicates to Hunt the possibility of a long-demolished fence, a drain, or a water vein. If it takes two paces, it may be a grave; if three or more paces, it may be a long-demolished building.

She says that when she surveys a new site, she first maps in the visible features on her plan and then looks for a large photo-field. When she encounters what she believes to be a large photo-field she holds her wires parallel to its edge, then moves sideways until she comes to a corner. She claims the wires will turn naturally with the corner forming a right angle. She then continues around the photo field until all corners are marked. She finds most buildings are square or rectangular.

She says that once the perimeter of a building has been defined, she walks around it. When she encounters what she believes to be a doorway or a pathway, the wires open, and upon crossing the doorway or pathway opening the wires swing shut. When only one wire opens, forming a right angle, she believes she has encountered another wall. Then, having located a corner, she defines the perimeter of the addition and any exterior doorways. She then moves sideways along the pathway. If the wires continue to open, she believes

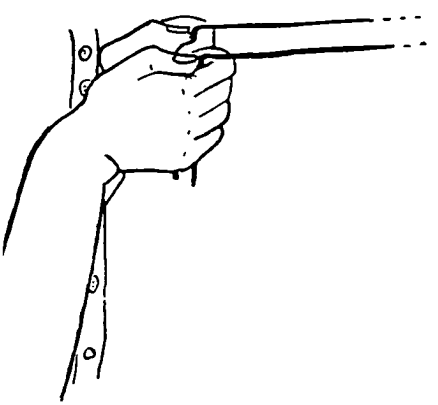


FIGURE 1: Holding the wires.

she has a doorway. But if after a pace or two sideways they turn and form a right angle, she believes she has located an addition or a fireplace chimney.

After defining all exterior appendages to a building's "photo-field," she walks on the inside of the perimeter. She believes the wires will open at all pathways coming into the building and at inside walls. At the latter, she says the wires will open and then close when she crosses them. When she locates what she believes was an inside wall, she walks along it until she comes to the doorway. When the pattern she is defining indicates to her it was a house, but there is no indication of an outside chimney, she further checks along the wall on the inside. She believes that, in the interior of a photo-field, all fireplaces have pathways leading to them and that the wires will open and close when she crosses in front of a fireplace.

She also claims it is possible to locate stairwells where there are approximately 3′ × 4′ rectangular patterns with pathways leading into them. She believes in some corners it is possible to detect where corner cupboards have been located diagonally.

After defining a house pattern, she checks for porches and for attached fences and gates at the corners. She also traverses open areas to check for "photo-fields." When the size and shape of a photo-field indicates what she believes to be a grave, she holds the wires differently, away from her and about ten inches apart and finds they will cross. Over cisterns or buried wells, she says she finds the wires will swing rapidly back and forth and even rotate.

She states she was able to detect more objects, such as fences, partitions, stalls, and corner cupboards, toward the end of the mapping for her thesis project than at the beginning. She believes this may have been because of an increase in her skill at using the wires or because of the approaching spring equinox. She did not elaborate on the latter possibility.

Hunt has described EMPF research as similar to dowsing for water with a stick, but with major differences. Where very few people may be able to use a stick to locate water, she asserts almost everyone who is physically active can be quickly taught to locate the EMPFs. She alleges that dowsing generally refers to locating something below the ground's surface, but this is not necessarily the case in locating EMPFs. A building may have been set off the ground, on corner piers, or on skids without a foundation, or it may have been built entirely out of wood (such as a temporary Indian lodge), but Hunt believes it will still create an EMPF if it had been left in place for six months or more. The longer an object was in one place, she says, the stronger the pattern that remains.

Hunt has never presented evidence that she has carried out any blind experiments. She does not appear to have properly checked to verify that the patterns she believes she found correspond to any previously existing man-made structures.

Assessment

Hunt's methods derive from dowsing techniques. She states she discovered the phenomenon when practicing dowsing for water. Dowsing claims have been scientifically tested on several occasions throughout the world, and dowsers have been unable to prove their claims. Reports of such tests have appeared in the SKEPTICAL INQUIRER (4[1]: 16-20; 6[4]: 34-37; 8:138-140).

Hunt's University Thesis

Upon reading Karen Hunt's theories and claims, the examiners of her thesis in the Anthropology Department at Indiana University should have sent it to the Physics Department for an assessment, and possibly considered organizing a fully controlled test. There is no indication that they did so. They allowed her theories to stand and passed her thesis, thus allowing her to use the granting of her M.A. to give her claims a credibility they do not deserve.

Later, when questioned about passing Hunt's thesis, the thesis committee members reported that they had doubted the validity of "dowsing" and believed that Hunt's results were explainable by her application of logic and background knowledge of a site, coupled with such conventional techniques as archaeological investigation, interviewing of informants, and/or study of historical documents.

It was later reported to Timothy Londergan, associate dean of the Indiana University Graduate School, that the committee members were unconvinced of the scientific basis of Hunt's dowsing technique. They viewed her thesis as a historical interpretation based on findings using both archaeological and ethnohistorical data and evaluated it as a descriptive study, not as a methodological one. They suggested that the section in her thesis describing the dowsing technique might have been omitted without affecting the thesis significantly. However, it seemed reasonable to include a discussion of the method for sake of completeness. The thesis was judged a positive contribution to the descriptive literature on historic archaeology, and it was on that basis that it was accepted and signed by the committee members. It was not their intention in signing it to endorse the dowsing method, any more than the the signing of any thesis implies an endorsement of every aspect of the contents.

Londergan has pointed out to me that Hunt lived in the area of Missouri that she investigated for her thesis and that while writing it she was director of the County Historical Society. Therefore, completely independent of any theories about locating structures she would know a great deal about farm sites in Monroe County, Missouri.

He said a review of her thesis shows that virtually every site she listed is either still standing, has extensive site evidence (foundations, remnants of outbuildings, etc.), or is supported by documentation (county records, letters, deeds, etc.) or verbal evidence (in many cases, descendants of the original family live in later dwellings on the same site).

Thus the question arises as to whether the investigations reported in her thesis were based on conventional research or on electromagnetic photo-field detection, as she later claimed.

—*Mark Plummer*

The idea of linking dowsing to archaeology apparently dates from 1950, when a retired British major general, James Scott Elliot, used dowsing rods and pendulums as the basis for amazing claims. The claim to find archaeological features through dowsing has been tested and found wanting.

However, dowsing continues to make inroads into archaeology. In a survey conducted by archaeologist Ken Feder (Central Connecticut State University) in 1983-1984, 13.5 percent of 349 professional archaeologists indicated that when they teach archaeological methodology they present dowsing in a positive light.

Hunt in Australia

Hunt submitted a full report on her Australian survey to her sponsors, the Melbourne and Metropolitan Board of Works (MMBW), in which she claimed there were 129 buildings and structure patterns on the farm at the Board's historical park at Point Cook in Victoria. She described the buildings' uses and included detailed drawings. The only evaluation of the accuracy of her report in the MMBW's file was one comment by the Board. "The doubled size of the buildings was not discovered, although she seemed to locate a tank stand and windmill approximately where one was known to exist."

Leading Australian architects expressed the view that the sketches looked more like American buildings than Australian Colonial buildings. The two styles look quite different even to nonarchitects.

I sent Hunt's drawings to three American architects for evaluation. The first was Ken Morse, who has practiced architecture for 35 years in the American Midwest and in New Zealand. He stated that while the establishment of the historical period of a particular structure can be done to some extent on the basis of its general exterior form, actual details, such as finials and architrave columns, are better indicators. In his opinion, the general form of the two dwellings shown in one of Hunt's drawings bears a strong resemblance to American territorial styles of the period c. 1870-1900. He said he found it odd that Hunt was able to obtain details of superstructures clearly well above her reach as she walked the site. He noted that the drawings were without any conventional survey information, such as North arrows or indications of scale.

Two other American architects, Ivan and Clem Paulsen, said that the windmill she had drawn seemed way out of scale and that one of the buildings she had sketched could not have been built of wood without the use of huge trusses or tons of steel.

I was able to examine the MMBW's complete file relating to Hunt's survey. Apparently the award of an M.A. for her work lent credibility to her claims when the MMBW was deciding whether or not to pay for her trip to Australia. She had also cited the workshops where she had taught her technique.

By examining this file I was able to ascertain just how the MMBW became involved. After reading a 1982 report Hunt had written of an archaeological survey she had made, a Board employee became enthusiastic about the possibility of her technique being used at the Board's Historical Park. He contacted Hunt in America and asked her to forward details of her technique, her opinion of whether it would be effective at Point Cook, and the name of a reference. He then telephoned Mr. Turnbull, the director of archaeology for the Provincial Government of New Brunswick,

Canada, who had taken part in one of Hunt's workshops.

Turnbull's verbal assessment of Hunt's workshop was that Hunt had located a building but had not quite the correct orientation. According to the employee, Turnbull stated that her expertise should be used in conjunction with other methods. Turnbull said he would write to the MMBW, but no letter was received.

The MMBW employee claimed that a professor at the Folklore Institute and the executive director of the National Historic Communal Societies Association, both of Indiana University, supported Hunt's claims. I later found that Hunt had also given Robert T. Bray's name as a reference to the MMBW without his consent or knowledge. Professor Bray is in the Department of Anthropology and American Archaeology at the University of Missouri. When we phoned him, he stated that he did not believe that Hunt's EMPF theory and practice have any validity whatsoever.

At the suggestion of the employee, in 1984 Hunt wrote to the director of planning at the MMBW offering to pay for her own airfare to Australia on the condition that if the MMBW was satisfied with her work they would refund the full cost. The Board employee then wrote a memo titled "Possible Employment of Mrs. Hunt as a consultant archaeologist at Historic Precinct Point Cook Metropolitan Park." He summarized her claims regarding electromagnetic fields and techniques and said: "I am extremely skeptical as to the reasons given for the process but if the technique can be applied to the Point Cook Historical Park it could be of inestimable value in the recreating of the total building complex as it would have appeared in the 1860s." (It is a great pity he did not contact the Australian Skeptics for information, which may have made him even more skeptical.) He recommended "that the visit to Melbourne by Mrs. Hunt be approved and the Board agree to refund her air fare of $1,600 (subject to being satisfied with her work) and provide incidental actual expenses of $500 during her stay in Melbourne." A hand-written note under the recommendation states, "Discussed with Chairman—agreed to proceed." There is no evidence in the Board's file of a local scientist or physicist familiar with electromagnetic fields being asked to comment on Hunt's claims before approving her visit.

Hunt was told the good news. In her next letter she stated:

> To many of us who are anthropologists, Australia is known as the last frontier. My work with EMPFs is the beginning of a new frontier in archaeology. Its widespread use will be limited at first but eventually it will become commonplace, particularly when EMPF detectors (similar to metal detectors) are placed on the market. Until then I will continue to spearhead the research in this new frontier of science/archaeology.
>
> I am looking forward to being in Australia. You won't be disappointed!

She arrived in Australia on July 22, 1984, and spent most of her time at Point Cook. She also conducted a brief survey at the Lake Condah Aboriginal Mission with the Victorian Archaeological Survey.

The Board employee wrote a memo on August 21, after Hunt's first visit, saying that he thought Hunt had worked very hard and recommended that she be paid U.S.$1,500.

The only statement in the documents released as to the accuracy or value of Hunt's work prior to payment was: "The work at Point Cook will require verification; but we know that

a windmill had been erected about the site she located west of the stables."

After Hunt's departure, a memo was placed in the file showing that other Board staff attempted to use EMPF techniques and that they claimed to have located fence lines.

Hunt forwarded her report, then suggested that the Board employ her for three to five years as a full-time survey archaeologist. The Board then wrote to the Victorian State Archaeological Survey (VAS) asking for an archaeologist to comment on Hunt's survey.

VAS Acting Director McIntyre replied that there was no doubt that Hunt had invested a considerable amount of time and effort in the Point Cook project and was fully committed in her support of the electromagnetic photo field technique. This, plus her academic qualifications and references supplied to the Board, warranted that her findings be assessed in an objective and thorough manner. He said that the technique had not previously been demonstrated or tested in Australia and that the only opportunity they had to test her findings at Lake Condah produced little evidence of structural features postulated on the basis of electromagnetic photo fields. He recommended that the Board take steps to check the accuracy of the Point Cook reconstructions before funding any further photo-field surveys of the park.

He commented that the pattern of burials set out in Hunt's report as an aboriginal burial site was more suggestive of a European cemetery. However, he recommended that those features interpreted as graves should not be interfered with in any way!

McIntyre suggested that the existence of several of the buildings and their structural features shown on Hunt's plans could be readily tested by archaeological excavation. The most suitable candidates would be relatively small buildings with masonry components or other substantial foundations that might best have survived demolition and subsequent use of the site. Features like wells, stock tanks, and windmill footings would also leave distinctive archaeological remains. Small building complexes and fencelines should be avoided as these insubstantial structures are difficult to detect archaeologically, and individual features like post holes would be extremely difficult to correlate with Hunt's drawings.

McIntyre concluded that "the Board's decision to support Karen Hunt in carrying out her survey at Point Cook was a commendable experiment in the application of a new technique which may eventually prove to be of considerable scientific and educational value."

The Board's enthusiasm seems to have cooled with time. In April 1985 the employee originally responsible for contacting Hunt wrote:

> I discussed on site with Mr. Stewart Simmons, Archaeologist, VAS, as to whether it is worthwhile for the Board to engage Mrs. Karen Hunt for further work at Pt. Cook Historic Precinct. He is of the opinion that Mrs. Hunt's work, based on their experience at Lake Condah, was not accurate and failed to locate some features.
>
> It is apparent that this would also apply to the work at Pt. Cook.

Following that memo, the Board wrote to Hunt that it did "not wish to proceed with further electromagnetic photo field studies at Point Cook at this stage. The Board is very appreciative of your dedication and interest shown in the work you undertook at Point Cook and if a decision is made to extend your work we shall let you know in good time."

There was no evidence in the Board's file up to August 1985 that asking a scientist or physicist to comment on Hunt's report was ever considered.

A Scientific Test

On June 11, 1985, as president of the Australian Skeptics, I wrote to Hunt suggesting that our organization conduct a controlled scientific field test of her claims. I said that the test could be done in Australia or in the United States. On July 29, the national secretary of the Australian Skeptics, James Gerrand, repeated the offer to Hunt via satellite. She agreed to be tested.

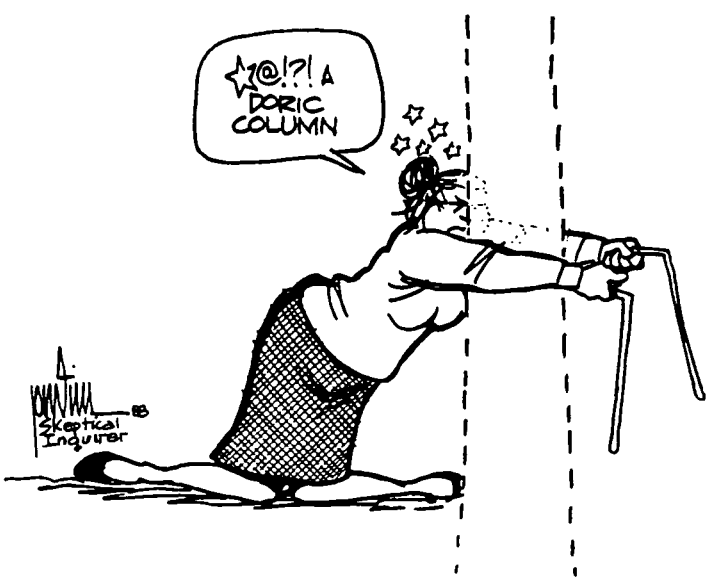
Hunt was offered an award of $10,000 each from Australians Dick Smith and Phillip Adams and U.S. $10,000 by James Randi, a total of approximately $32,000 (U.S. $24,000).

After Hunt's acceptance, the Australian Skeptics and James Randi organized the test during countless international phone calls and by airmail correspondence.

It was decided to conduct the test at a site where buildings had once stood and where Hunt was unlikely to have visited. The site was to have no visible traces of the buildings that had once stood there. It was also considered essential that we be able to obtain plans and photographs of the demolished buildings. This was arranged.

Randi selected suitable sites in Florida and we negotiated with a television producer for the payment of Hunt's airfare to and from Florida and two nights accommodation, in return for exclusive filming rights.

Hunt was to be taken to the test site, a flat parking lot built on the site of a recently demolished building that had stood for about 50 years. Randi had obtained accurate surveyor's plans and photographs of the demolished building. Hunt would be asked to map her impressions of the building, after which a surveyor would provide an accurate overlay of the old structure for comparison with her impressions. A second method of testing the existence of EMPFs would be to have



Hunt locate an EMPF, then blindfold her and have her approach the EMPF from a different angle to see if she could locate it again in the same position.

Hunt had written that every demolished building that had stood for a minimum of six months would leave an EMPF, also that the EMPF could not be destroyed by a new building or by removing the soil beneath it or by covering the site. The proposed site selected by Randi was thus suitable for a blind test of her theory and techniques. All Hunt had to do to prove her claims in a controlled scientific test was to accurately map the position of part of the demolished building on the chosen site, using the divining rods.

She refused to participate in the proposed test. She gave no reason, but sent a letter stating that if we wished proof of her claims we would have to find it at Point Cook, Australia, and not elsewhere. Hunt proposed an excavation at Point Cook that would have cost thousands of dollars. Even if we had the money for such an excavation it would not prove her theories of existence of EMPFs or her claims to find EMPFs and ruins by using divining rods.

Archaeologist K. L. Feder (1980) has pointed out the problems of negative success in the claims of psychic archaeologists. Suppose the farm were to be excavated and nothing found. All the wooden supports had so thoroughly rotted away or been removed by subsequent agricultural activity that no traces could be found. If something Hunt claimed was not found this would not prove her wrong; it might merely mean that there were no findable traces of the remains, that they had not survived demolition and subsequent use of the site. Suppose some remains were found. There could be a dispute about the interpretation of the remains. We could not be sure that the remains were found by Mrs. Hunt's divining and the existence of EMPFs.

In her thesis, Hunt says that one of the first steps in her field procedures is to obtain all available information about the buildings and structures that once stood on the site.

In her MMBW report, she thanks Board employees for providing information, and she acknowledges in her letter dated July 29 that she was shown the MMBW historical archaeological reports on the site two weeks after she started her research. She stated that the MMBW has almost no records of any buildings. However, in a memo in the MMBW files an employee states: ". . . She seemed to locate a tank stand and a windmill approximately where one was known to exist."

We do not know what she learned about the site from MMBW employees or other sources or what she gained from the divining rods. A fully controlled scientific test requires strict controls from the beginning. Hunt does not appear to understand the requirements of a controlled scientific test. Randi's test would have been definitive.

I wrote to Hunt again in 1987 asking if she would undergo a test. Although she received my letter she did not reply. Her refusal to undergo such a test leaves the existence of EMPFs and her divining claims unproved. The examination of her theories, techniques, and results, I believe, show there is no substance to her claims.

Randi's challenge to Hunt still stands—U.S.$10,000 for one day's work, although this time she will have to pay the expenses in setting up the test.

Even after refusing the test and

being sent a full written investigation of her claims, Hunt continues to conduct an occasional workshop—and collects a modest tuition fee.

She is also currently working on a book about her theory and has stated that unnamed scientists are also developing a laser-beam scanner with which to scan photo-fields and come up with a picture of the invisible buildings. She thinks it may be 20 years before it is available for public use but that such a time-camera has great potential for documentaries on past civilizations.

Because of the self-validating nature of divining, more people with a genuine interest in archaeology may come to believe in EMPFs and Hunt's techniques. Ken Feder has pointed out the danger posed to archaeology by such claims.

Archaeological "reconnaissance" surveying, the process of finding buried prehistoric or historical remains, is an expensive, labor-intensive proposition with no short-cuts. U.S. federal law calls for archaeological surveys to determine the potential impact on sites of federally funded construction projects. These are also expensive. Hunt claims, essentially, that she can do that work all by herself with a couple of coat-hangers (and at a greater level of detail, since she can reconstruct invisible, above-ground pattern). Someone in a position of power with no real commitment to preserving historical resources might find it more convenient and cost-effective to hire a Karen Hunt rather than a team of genuine archaeologists. Thus official recognition of her claims poses a real threat to the archaeological record.

Acknowledgments

The author wishes to thank Ian Bryce, Allan Christophers, James Gerrand, John Harries, Dave Wheeler, Marie Mannik, Jane Symons, John Cole, Ken Morse, and Ivan and Clem Paulsen.

Thanks also to magicians James Randi and Mike Wilton for advice and planning a test of Hunt's theories and techniques, and to Michael Willesee for arranging a satellite television interview between James Gerrand and Karen Hunt.

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Mark Plummer is chairman of the Victoria branch of the Australian Skeptics.

True Believers

BRUCE BOWER

Anyone who has chuckled at an outrageous headline blazing across a supermarket tabloid can tell you that understanding an idea and believing in that idea do not go hand in hand. Otherwise, checkout-stand regulars would accept such proclamations as "Cave-Men Looked Like Elvis!" as articles of faith.

Think again, shoppers. Inquiring minds not only want to know; they also tend to believe, at least initially, what they read and hear, according to psychologist Daniel T. Gilbert of the University of Texas at Austin.

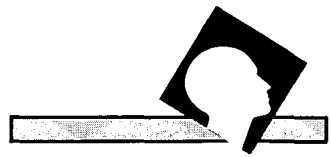
"Much recent research converges on a single point—people are credulous creatures who find it very easy to believe and very difficult to doubt," Gilbert argues in an article in the March *American Psychologist.*

His contention may spark debate, but it hardly qualifies as unprecedented. More than 2,300 years ago, Aristotle said the ability to doubt is rare, emerging only among cultivated, educated persons.

Aristotle's claim has gained support in the past decade from several studies indicating that young children generally accept the statements of adults uncritically—a tendency that often distorts youngsters' eyewitness accounts of crimes.

However, current psychological theories of belief formation lean more heavily on the notions of another philosopher—René Descartes. The influential seventeenth-century French thinker maintained that the mind effortlessly and automatically takes in new ideas, which remain in limbo until verified or rejected by conscious, rational analysis.

Descartes' detachment of comprehension from critical assessment—although less well known than his separation of mind from body—continues to influence scientific assumptions about how people think, Gilbert maintains. For



Recent psychological research shows that the thinking person may favor gullibility over skepticism.

instance, computer scientists typically design state-of-the-art systems modeling language acquisition and other mental abilities to ingest information in a "neutral" form before determining that information's usefulness or destination.

But Spinoza, writing shortly after Descartes's death, offered an entirely different perspective on thought. Spinoza argued that to comprehend an idea a person must simultaneously accept it as true. Conscious analysis—which, depending on the idea, may occur almost immediately or with considerable effort—allows the mind to reject what it initially accepted as fact.

Spinoza's seemingly preposterous claim finds backing from three experiments reported by Gilbert and his coworkers in the October 1990 *Journal of Personality and Social Psychology*. The experiments test a basic assumption of Spinoza's theory: If people initially believe both true and false ideas, interruption of the mental evaluation of those ideas should interfere with the ability to reject bogus claims, while true notions would maintain their seal of approval.

In the first of those studies, 35 college students learned the meaning of fictitious nouns—which they were told represented Hopi Indian words—by reading definitions on a computer screen, such as "A *twyrin* is a doctor." Immediately after each definition appeared, the computer displayed the word *true* or *false* to indicate whether the statement was correct. On some trials, a tone sounded just after the computer confirmed or denied a statement. Because students had to press a response button when they heard the tone, it momentarily distracted their attention.

Interruption by the tone caused a substantial increase in the number of computer-denied propositions that the students later accepted as true on an identification test. On the other hand, interrupted students were not more likely to label a computer-affirmed definition as false.

By initially accepting both true and false ideas, the volunteers apparently thought in a Spinozan fashion, Gilbert asserts. Thus, distractions undermined the subsequent thought necessary to scrutinize denied claims, but not affirmed ones.

Descartes's scheme, in contrast, assumes that interruptions play equal-opportunity havoc with the rational evaluation of both affirmed and denied statements.

In the second study, 20 students viewed a series of smiling male faces shown on a video monitor. On some trials, the monitor displayed the word *true* or *false* before showing a face, to signal whether the man expressed genuine or feigned happiness. On other trials, signal words appeared after the students saw a face.

Students who were distracted by pressing a button at the sound of a tone just *after* viewing each face usually misidentified false smiles as genuine, but not vice versa. Even those informed ahead of time that a smile was false often labeled it as genuine if they were subsequently interrupted. In other words, when distractions derailed their train of thought, volunteers who had been given reason to doubt false information nevertheless tended to accept that information as true.

In the final study, the researchers presented 30 students with descriptive phrases about an imaginary animal called a "glark." Participants then decided whether new propositions about glarks were true or false. During this task, they were occasionally told to read a statement about glarks as quickly as possible without gauging its veracity. Each of these phrases ap-

peared a second time during the test for evaluation as true or false.

Students probably accepted quickly read propositions at first, rather than treating them neutrally, Gilbert argues. They later reported one-quarter of the speed-read false statements as true, whereas they identified nearly all the speed-read true statements correctly.

"We're naive Cartesians," Gilbert contends. "We assume beliefs are under conscious control at all times. But beliefs can be created merely by passively accepting information without attempting to analyze it."

He points to other lines of research that support his argument. For instance, psycholinguists established nearly 20 years ago that people presented with true and false sentences generally take less time to determine the accuracy of the true statements. One research team wrote that when individuals read assertions, they "start with the truth index set to true."

Psycholinguistic work also suggests that the comprehension of a denial (say, "armadillos are not herbivorous") first involves grasping the concept under dispute (armadillos are herbivorous). A Spinozan mind employing this mental tactic should at times believe what has clearly been denied, Gilbert points out.

A 1981 study directed by psychologist Daniel M. Wegner of Trinity University in San Antonio, Texas, illustrates this paradox. In a finding of particular interest to journalists, students who read propositions like "Bob Talbert not linked to Mafia" reported markedly more negative impressions of the fictitious Talbert than did students who read neutral statements like "Bob Talbert celebrates birthday."

People also automatically tend to seek out evidence that confirms their beliefs about others. Studies have shown, for example, that volunteers led to believe in the outgoing nature of a young woman later asked her questions concentrating on the extent of her sociability, while neglecting to probe for shy or reticent aspects of her personality.

In related work, psychologists studying persuasion and lie detection have observed that people often believe what others tell them without question. Opinions about others, as well as autobiographical claims, often gain acceptance more readily when the listener performs a competing task that diverts attention from the speaker's message.

"People who sell used cars and vacuum cleaners have long known about the persuasive power of timed interruptions and diversions," Gilbert notes.

Many brainwashing and coercion techniques rely on extreme methods to fragment the attention of political prisoners, he adds. Interrogators often keep prisoners awake for days at a time and then browbeat the exhausted captives with an ideological barrage they find difficult to resist. Forced confessions also exert insidious effects: After writing and reciting a captor's message many times over, weary prisoners start to doubt their own opinions.

The same principles extend beyond used-car lots and dictators' dungeons, warns psychologist John A. Bargh of New York University. "My hunch is that control over automatic, unconscious influences on judgment and behavior is not usually exercised," says Bargh, who co-edited a compilation of research on the subject (*Unintended Thought*, 1989, Guilford Press, New York). "It's not that people are lazy. They tend to think these influences don't exist, and often don't have the luxury of extended thought about

what they hear or read from moment to moment."

Moreover, Gilbert argues, just as healthy people immediately believe what they see, doubting their eyes only on rare occasions, so must they initially believe what they read or hear, if only for a fleeting moment.

Gilbert and his co-workers have yet to study whether distracted attention increases the likelihood of believing obviously outrageous assertions. Although Spinoza's theory holds that a statement like "Hitler was a woman" meets instant acceptance and almost as quickly goes up in flames as contradictory evidence leaps to mind, that prediction proves difficult to study in the laboratory.

Despite gaps in scientific knowledge about belief formation, "the burden of proof has shifted onto Descartes's theory," Gilbert contends.

For now, though, a 1984 Gallup poll of a national sample offers a bit of comfort to the much-maligned Spinoza: One in five respondents referred to supermarket tabloids as "accurate."

Who knows? Tabloid believers may regularly suffer from attention meltdown in the checkout line upon hearing their grocery bills.

Bruce Bower is Behavioral Sciences Editor of Science News, *the weekly newsmagazine of science, from which this article is reprinted by permission. Copyright ©1991 by Science Service, Inc.*

Short-Circuiting Scientific Scrutiny

Skepticism and challenge to the status quo are the stuff of scientific breakthrough and new insight—that is, when they are coupled with the arduous, unglamorous, often tedious process of gathering evidence and analyzing data to test a hypothesis. When an individual comes along who short-circuits the process, dodges the scrutiny of the peer-reviewed scientific literature, and takes his hypotheses directly to the press, the scientific community quite rightly views him as suspect, at best overzealous, and at worst a charlatan. Too often, however, the press depicts such individuals as misunderstood and persecuted mavericks bucking an intolerant and self-protective establishment. That may make for a better story, but the truth is usually something quite different.

—G. Brent Dalrymple, President, American Geophysical Union, "Good Press for Bad Science," *EOS, Transactions of the American Geophysical Union*, January 29, 1991

Physiological Explanation Of Human 'Auras'

GEOFFREY DEAN

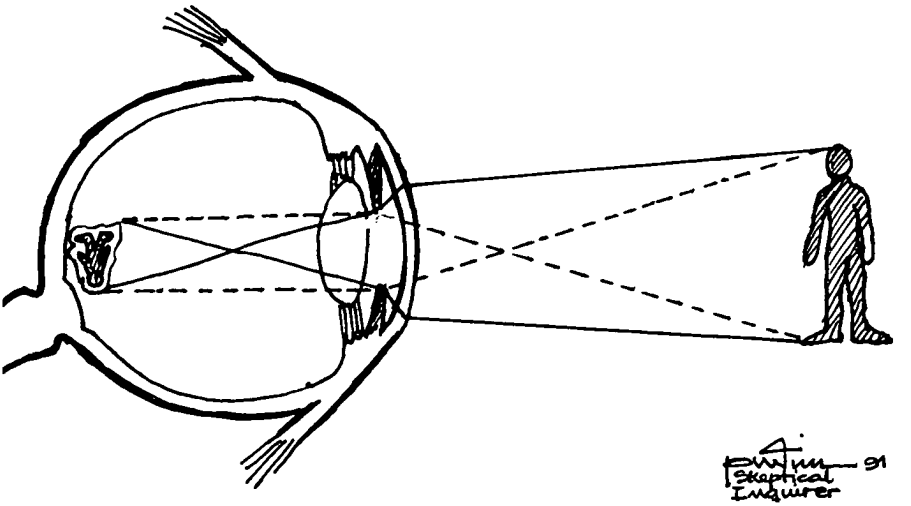
An important but seemingly forgotten study of the aura, by D. F. Fraser-Harris, appeared in 1932 ("A Psycho-physiological Explanation of the So-called Human Aura," *British Journal of Medical Psychology*, 12:174-184). Fraser-Harris attributes most of the aura effect to retinal after-images, the apparent persistence after we shut our eyes of a bright object seen against a dark background (positive after-image), and vice versa (negative after-image).

> If the fingers of the two hands touching one another be held in front of the [black] background at the level of the eyes and be stared at for fifteen seconds or so, and then slowly drawn apart, it is stated that the aura in the form of "greyish mists" will be seen streaming from the ends of the receding fingers. After having repeated this procedure many times, I find that the following is a more correct statement of what occurs: in the places where the fingers were (digital spaces) one sees very dark or black areas corresponding exactly to the shape of the fingers, and in the spaces between the fingers (interdigital spaces) one may see the greyish mists. It is these mists that are called the "aura." The statement that the greyish mists stream from the *ends* of the fingers is therefore due to mal-observation. These appearances can be explained by invoking nothing more mysterious than the principle of negative after-images. . . . The greyish mists ("aura") are the whitish after-images of the interdigital portions of the black background. . . .

Fraser-Harris confirms this explanation using various backgrounds, cardboard hands, and walking sticks, in all possible combinations of black and white. In each case white objects on black backgrounds gave auras.

> These observations would indicate that the phenomenon called the "aura" has nothing to do with vitality, seeing that the appropriate physiological phenomena are obtained as perfectly with non-living artificial, conventionalized, cardboard hands as with hands of flesh and blood.

Fraser-Harris also examines the claims of W. J. Kilner (1847-1920) as set out in *The Human Atmosphere (the Aura)*, 2nd ed., published in 1920, including the claim that sensitivity is enhanced by looking through a blue filter. Again Fraser-Harris finds that grayish auras are readily explained by after-image and other retinal effects. Owing to inconsistencies and vagueness in Kilner's descriptions, he is suspicious of colored auras said to be related to various diseases and emotional states, but these "being quite beyond my



personal experience must be left unexamined."

From his personal experiments Fraser-Harris concludes:

> . . . Auras have no objective, external, independent existence, but are essentially the results in consciousness of those states of the retina known to physiological psychologists as negative after-images. On this view the aura is neither an illusion nor a hallucination, but rather a subjective sensation or unshared perception corresponding not to the presence of an external object but to a more or less transitory physiological condition of the retina of the percipient.

Geoffrey Dean is a technical editor in Perth, Australia.

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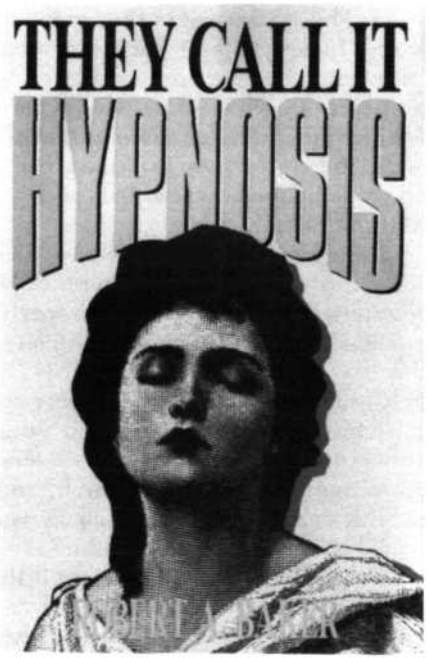
Book Reviews

What Hypnosis Is and What It Isn't

They Call It Hypnosis. By Robert A. Baker. Prometheus Books, Buffalo, N.Y., 1990. 300 pp. Cloth, $21.95.

LEWIS JONES



"Once upon a time there was an emperor, a real cool king, who loved new clothes and spent all his money on them. He was always showing off his fashionable duds and he had a different set for every day of the week."

With a beginning as unbuttoned as this, you know you are in the company of a friendly mentor who is concerned that you should not only get the facts but also understand and enjoy them.

The emperor with the invisible wardrobe is of course King Hypnosis, who is concerned only to look good and be admired. "The king said, 'That's for me, boys. I can not only look swell but at the same time separate the good guys from the bad guys in my kingdom.' "

Robert A. Baker is professor emeritus of psychology at the University of Kentucky, Lexington, and within a few pages of the start of this book he gives notice that you should stand by for some plain speaking: "Strictly speaking, every time the word 'hypnosis' is used it could be placed in quotation marks. *This is because there is no such thing as hypnosis.* The point and purpose of this book is to convince the reader that the phenomenon called 'hypnosis' does not exist, has never existed in the past, and will not exist in the future." You can't speak plainer than that.

"Anyone and everyone who can relax and concentrate can play the game of hypnosis with any hypnotist," writes Baker. If you believe you can show otherwise, you can pick up an immediate cash payment from the Amazing Kreskin. Here is Kreskin's offer:

> I now offer $100,000 to any Psychologist, Psychiatrist or Hypnotist who can conclusively prove under

scientific conditions, that I shall clearly outline and define, a specific condition, trance or state called "hypnosis."

Secondly, the challenger must clearly demonstrate that what can be done in the so-called state cannot be reproduced without that state. Yours truly knows of no such phenomenon.

In Baker's book, mentalist Kreskin, along with some other stage performers, is accorded serious consideration. This is unusual in the academic world. Indeed, one of the interesting features of Baker's book is that he is prepared to give some stage performers their due for coming up with ideas and techniques that have been taken up by medical scientists such as Milton Erickson.

There has long been an entrenched school of thought that will only countenance the opinions of properly qualified "experts" on the subject. Baker will have no truck with it: "If only those with years of supporting a particular point of view and with substantial vested interests were permitted to speak, do research, and publish on a subject, it is unlikely we would ever learn anything new."

And we have learned precious little that is both new and true about hypnosis since the Viennese Jesuit Maximilian Hell applied steel plates to the bodies of the sick. The downward path began when he demonstrated his methods to Franz Anton Mesmer—who "believed that perfect health depended upon the individuals having a correct relationship with the heavenly bodies."

There are curious sidelights on some of the star personalities in the history of hypnosis. Mary Baker Eddy became acquainted with it through the physician Phineas Quimby, who was the anesthetist at the first surgical operation performed under hypnosis in the United States. The pioneer James Esdaile believed he could mesmerize clients in court by making mesmeric passes *behind their backs.* "Many of Charcot's patients and star performers were ex-prostitutes from the music hall stage and were skilled comedians and imitators. . . ." A book called *Animal Magnetism* was coauthored by Alfred Binet, father of the intelligence test. And Emile Coué was so completely sold on the idea of autosuggestion that he stated firmly: "In my opinion, whenever a patient consults a doctor, the latter should always order some drug or other, even if drugs should not be really indicated."

But then there is the other side of the coin.

C. S. Moss claims he has successfully used the nonsense word *phoz* instead of *sleep* during hypnotic inductions. And he has told volunteer subjects, "Please sit over there in that chair and go into hypnosis," upon which Moss resumed his lecture to the audience. He reports: "The subject sits down quietly and in a second or two is hypnotized, i.e., he is playing the role of a person in hypnosis!"

Baker reminds us that "a few years ago two very naive psychiatrists, Dr. Harold Rosen and Dr. Herbert Spiegel, succeeded in abolishing formal demonstrations from live television because of its purported 'dangers' to the general public." On what Baker calls "this idiocy," Kreskin has commented that the likelihood of a viewer indulging in "self-hypnosis" after watching TV "is in the same ratio as shooting a hole in one after watching Arnold Palmer, and involves about the same hazard."

In the words of the *Handbook of Practical Psychology* (B. R. Bugelski and A. M. Graziano): "Those who worry about all the harm that hypnotists might cause are misplacing their

worries. . . . Popular leaders such as Hitler could get others to do all sorts of horrible things without relaxing them and telling them that they were falling asleep."

As for the dangers of live performance, Kreskin has ordered a compliant volunteer to leave the stage for five minutes, then come back, pick up a butcher's knife, and plunge it into Kreskin's back. The man got as far as picking up the knife, "but then he dropped it and shuddered."

The law can be as superstitious as any television administration. "It may turn out that a recent U.S. Supreme Court decision allowing the individual states limited use of hypnotically aided testimony was unwise." As Elizabeth Loftus has pointed out, "There's no way even the most sophisticated hypnotist can tell the difference between a memory that is real and one that's created."

And hypnotically elicited reports of reincarnation have been shown to be "a direct function of the hypnotist's belief about reincarnation."

Baker is also clear about the need to unravel the complexities of pain instead of attributing magical powers of anesthesia to hypnosis. Some people "will faint at a paper cut," while "some rare individuals have even performed surgery upon themselves without the benefit of anesthesia of any kind."

This wide-ranging and enjoyable survey of hypnosis at the turn of the 1990s might well have used as its subtitle the heading of its fourth chapter: "What Hypnosis Is, What Hypnosis Is Not, and What It Does and Doesn't Do."

"The lame excuse that is usually heard, 'Psychotherapy is an art, not a science,' will not suffice." says Baker. "If it is not a science then it is high time that it became one. . . . Until it is done, hypnosis has no future, and rightfully and thankfully so. It is high time we got on with how we can more effectively communicate with and influence the minds and behaviors of our clients and assist them in solving their problems, healing their illnesses, optimizing their health, and improving their lives."

Lewis Jones is a London writer.

The Current Status of Psychotherapy

Critical Thinking in Clinical Practice: Improving the Accuracy of Judgments and Decisions About Clients. By Eileen Gambrill. Jossey-Bass Publishers, San Francisco, 1990. 432 pp. Cloth, $29.95.

ROBERT A. BAKER

A more accurate and appropriate title for Eileen Gambrill's book would be "*The Lack of* Critical Thinking in Clinical Practice." For those readers unfamiliar with the present state of psychotherapy this book will come as a bombshell. For those more familar with it who would like to upgrade the quality of mental-health care it is a godsend. For critics of mental-health practices Gambrill's book is an explosion of the first magnitude, and it is all the more effective because she did not intend

it to be an exposé of the current sorry state of both training and practice within the profession. Gambrill, a professor of social welfare at the University of California, Berkeley, is both a social worker and a psychologist, and she has had more than 30 years of practical clinical experience dealing daily with clients from all walks of life. She is extremely well qualified to write this book and not only to reveal what is wrong with current practices but to specify exactly what steps are needed to put clinical work by psychiatrists, psychologists, and social workers on a more scientific footing.

Concerned observers of mental-health practices have long been aware of the shaky and ascientific foundation upon which most of what passes for clinical psychotherapy currently rests. Such critics as Thomas Szasz (1961, 1970), Garth Wood (1987), William Schofield (1965), Benjamin and Dorothea Braginsky (1969), Tennov (1975), Rosen (1979), Rosenhan (1973), Maeder (1989), Thornton (1984), Medawar (1984), and E. Fuller Torrey (1973, 1974, 1988) would scarcely raise an eyebrow to learn from Gambrill that "the battle for acceptance of the scientific method that has been won in the physical sciences and in many areas of medicine has not yet been won in psychotherapy" (p. 56). Or that "experts do not necessarily perform better than novices in unstructured problem areas such as psychology and psychiatry" (p. 14). Or that "clinicians have a tendency not to search for evidence against their views; this tendency often results in errors" (p. 10). Or that "some clinicians carry out their practice with little or no effort to take advantage of new data concerning what seems to be effective with different kinds of problems with different kinds of clients" (p. 3). Or that "many people who entered a mental hospital in the fifties and spent the rest of their lives there should not have been hospitalized in the first place" (p. 2). All of these quotations—and I could cite several hundred more—are statements made by Gambrill not to savage current practices but to support her arguments for the need to be alert to such weaknesses and to establish courses and training programs to eliminate them. One has only to read between the lines, however, to quickly become appalled at what is currently going on in the name of helping the public with its mental problems.

In a health-practice area like psychotherapy, where decision-making can be and often is a life-and-death matter, it is not only urgent but mandatory that all clinical decisions be the best possible under the existing circumstances. Despite the obvious importance of this matter, little or no attention has been devoted to either critical thinking or decision-making by college and university training programs or by professional associations, such as the American Psychological Association, the American Psychiatric Association, and the National Association of Social Workers. They have, on the other hand, devoted months and volumes to the topics of licensure, ethical standards, fees, classification, and, currently, who should be permitted to prescribe medications.

While it is obvious that objective criteria for detecting errors are not as available in psychology, social work, and psychiatry as they are in the field of medicine, where anatomical or histological indicators may be found by a pathologist, nevertheless, as Gambrill stresses, there are many, many signs and indicators that can serve the psychotherapist. Errors may occur in all three phases of clinical practice: assessment, intervention, and evaluation. Practitioners need to

be not only aware of possible errors at each phase but also sensitive to the fact that the very nature of clinical practice itself leaves room for many other sources of error—in the clinician, in the client, and in the social context. Yet since so many clinicians approach their practice as an art and "reject as irrelevant all empirical research related to practice concerns," and since many others "believe that the therapeutic process is essentially unknowable," they hold as useless any attempts to identify specific elements of the process that contribute to its success. As Gambrill notes, "A belief that there are no answers will discourage a search for answers. . . . Errors are part and parcel of continued refinement of clinical skills and are more likely to be avoided if the possibility of error is accepted" (pp. 361-362).

And there are errors aplenty. Gambrill is well aware that in order to correct the sins of commission and to prevent the sins of omission one has to list them, and list them she does. About the only faults and failures of modern psychotherapy she omits are the trials of psychoanalysis and the tribulations of "psychics" and metapsychiatrists. If you are unaware of the scientific status of psychoanalysis you should read Garth Wood's chapter "The Evidence Against Psychoanalysis and Psychotherapy" in his *The Myth of Neurosis* (1987) and Wolpe's (1981) review and consider the fact that the American Psychoanalytic Association's Central Fact Gathering Committee found the results of a worldwide survey so appalling they refused to publish it.

Many people are also unaware of the existence of what is known as *metapsychiatry* (Dean 1975), whose raison d'être is to merge psychiatry with mysticism and the occult. The fact that this effort has been partially successful can be seen in the recent claims by psychiatrists and psychologists that many of their patients are possessed by demons (Fiore 1988; Allison 1980; Peck 1983), that athletic stars use psychokinesis to score their points (Ross 1989) and also that hypnosis is nothing but PK (McConnell 1983), that many of their clients have indeed been abducted by aliens in extraterrestrial spaceships (Fiore 1989; Laibow 1990; Sprinkle 1976), and that uncovering past lives through hypnotic regression can be extraordinarily therapeutic (Wambach 1978, 1979), while sending people into the future by hypnotic progression enables us to foresee the future (Snow and Wambach 1989). Albeit such metathinkers are few in number among psychotherapists and represent only the fringe elements that exist in all professions, nevertheless there has not been either a sufficient or a sustained objection on the part of any of the professional associations to any of these claims. To my knowledge there has been no response of any sort; instead, there has been an acceptive silence. In fact, the silence itself can be seen as constituting a tacit endorsement.

These are additional indicators of the failure of critical thinking in the field of psychotherapy. The failure of therapists to critique their own practices and procedures has led to a big business that Wood regards as a fraud. An excellent example of this is furnished by the success that so many alleged psychics have with the general public. Skeptics shake their heads in wonder that the public can be so credulous as to pay attention to the phony "mind-reading" and "prophesying" stunts psychics employ. Yet a typical interchange I taped from a recent radio show goes like this:

> Client: I'm currently seeing two men. One is rich and homely,

staid and conservative, and can give me security, comfort, and respectability. The other man is poor, handsome, romantic, and exciting and lives a hand-to-mouth existence. But he's so attractive and fun to be with. Both want to marry me. I'm about to go crazy trying to decide which to accept. Please, please, could you tell me what to do? What do you see in my future?

Psychic: Well, you certainly have to make the final choice, the final decision! But I see you really being very, very happy with the poor man, and I see you and him living happily ever after. Don't worry about money. Go with your heart and all will work out for the best. That's what I see.

Client: Oh, thank you J——! Thank you, thank you, thank you. What a load you've taken off my shoulders. I felt that I should go ahead, but everyone tells me I'm foolish not to think about the money. I really can't thank you enough. I'm so relieved!

Psychic: [The pride and satisfaction in his voice is unmistakable.] You are most welcome. Glad to have helped. Next case please.

In this brief interchange we have all the ingredients of the psychotherapeutic setting as well: Client suffering from the anxieties of a real-life dilemma needing comfort, reassurance, and direction seeks out all-knowing, future-seeing guru who resolves problem, provides comfort, gives reassurance, points out the correct direction, and feels good about having helped one more poor unfortunate. The poor unfortunate is now no longer "poor"; the anxiety and indecision are gone; her future happiness is assured, since she'll be spending it with the man she loves, even though she may have to support him. Neither the psychic nor the typical psychotherapist ever knows their success rate or whether or not the client really *does* live happily ever after. The husband-to-be could well be an axe murderer, a wife-beater, or an alcoholic, but neither the psychic nor the therapist will ever know. Both are too busy to conduct a follow-up. In 1983, Zilbergeld was perceptive enough to note, in his book *The Shrinking of America*, that it really makes no difference whether clients receive what they came for—they are still glad they came. Much too often people go to a therapist when all they need is a friend. This is what most clinicians mean when they say, "Of course psychotherapy works." Just what it is that "works" they are often unaware of.

Gambrill's book should serve as both a warning and an antidote for this sort of self-serving and socially reinforcing critical-thinking error, which is only one of many that can show up in therapy. As she notes, "clinical errors may result in (1) failing to offer help that could be provided and is desired by clients, (2) forcing clients to accept 'help' they do not want, (3) offering help that is really not needed, or (4) using procedures that aggravate rather than alleviate client concerns and that result in iatrogenic effects" (p. 3).

Although the book is designed for and directed toward clinicians, one should not assume that it is either negative in tone or merely a polemic about what is wrong with therapy or that the book is useful only for clinicians. None of these things are true. In fact, the major portion of the book is devoted to the discussion of decision-making, critical thinking, errors in thinking, ways of reducing uncertainty, the difference between facts and beliefs, persuasion strategies, various kinds and sources of logical fallacies, the role of causal factors, how to collect pertinent data,

and ways in which one can enhance the accuracy of one's assumptions and predictions. Gambrill closes with an insightful discussion of how to reduce social anxieties and overcome the personal obstacles that get in the way of developing and using critical thinking skills. This is information useful for anyone and everyone no matter what their occupation or profession.

As Gambrill observes, "Writing a book about critical thinking is a daunting prospect, given the inevitability of revealing crooked thinking. However, the book is written in the spirit that we all make errors and that the task is to learn to recognize and correct them." Although the task she points to remains undone, like all good therapists she not only diagnoses the disorder but also writes the prescription and supplies the medicine to alleviate the symptoms and cure the disease—not just in the area of clinical practice but in any and all areas of human endeavor where critical thinking is needed.

Anyone seeking a succinct, well-written, easy-to-read survey of faulty reasoning and how to cure it should look no further. Gambrill's book should be the required text for any course in critical thinking for psychotherapists, a course urgently needed by every psychiatric, clinical psychology, and social-work training program in existence today. Such training may even convince some of our less thoughtful therapists that it is not necessary to buy into the delusions and hallucinations of one's clients in order to deliver one's services. In insane places, it is particularly important that therapists keep their sanity.

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Give Me That Old-Time Religion: Two Books on the Modern Satanism Scare

Painted Black: From Drug Killings to Heavy Metal—The Alarming True Story of How Satanism is Terrorizing Our Communities. By Carl A. Raschke. Harper & Row, San Francisco, 1990. 276 pp. Cloth, $16.95.

In Pursuit of Satan: The Police and the Occult. By Robert Hicks. Prometheus Books, Buffalo, N.Y., 1991. 416 pp. Cloth, $24.95.

RICHARD NOLL

In the 1980s, the American media reported with alarming frequency that people who, individually or in groups, allegedly committed criminal activities did so because of their belief in, and their active worship of, the Christian conception of "Satan," "the Devil," "Lucifer," and other supernatural perpetrators of evil. Communities throughout the United States (and then Canada) began to express serious concern about the secret existence of such groups within their midst, and claims made about the activities of these "satanic cults" seemed to be universal in their agreement. The most persistent claim is that there is a vast underground network of satanic cults in North America, and perhaps around the world, that threatens our civilized society. These cults allegedly have maintained a secret existence for hundreds or perhaps thousands of years, and it is claimed that:

—they kidnap and "ritually" abuse children;

—the abuse is physical and sexual and leads to the development of mental illness later in life, particularly dissociative disorders like multiple-personality disorder;

—they engage in cannibalism;

—they perform infanticide;

—they engage in the ingestion of blood and other bodily fluids, and sometimes excrement;

—they engage in sex orgies and perform sexual deviations of all sorts;

—in perpetrating the abuse, they

use "ritualistic" paraphernalia, such as candles, magic circles, robes, altars, etc., all of which are related to the worship of Satan;

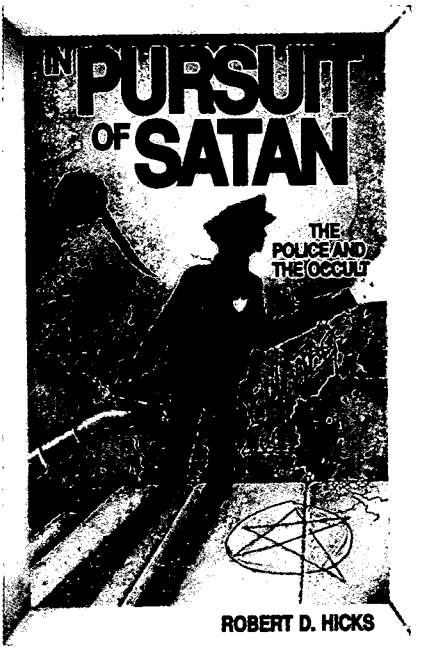
—the Black Mass is performed, often with human or animal sacrifices.

The two books under review here take diametrically opposite positions on this controversy. Both purport to sift through the evidence pro and con for the existence of satanic cults and the influence of Satanism in the commission of criminal acts. Unfortunately, only one of these books—a magisterial analysis of the issue by Robert Hicks—can command respect as a truly helpful attempt to weigh the scientific status of these claims. Carl Raschke's book, especially considering his credentials as a professor of religious studies at the University of Denver and the author of many books with theological themes, is a disappointment. It is designed more for the audiences of television talk-shows than for informed readers who want a more balanced survey.

Raschke is out to fight the great dragon as he sees it: Satanism as an ideology, and a highly virulent one at that. As in most publications of this nature, in Raschke's book Satanism as a concept is reified as a threat but never cogently defined. Just what is Satanism? The closest Raschke comes is in the Introduction:

> Satanism *is* a sophisticated and highly effective motivational system for the spread of violence and cultural terrorism, all the while hiding behind the cloak of the First Amendment. It is an ideology that has found a strategic application in the criminal underworld, even if it was not invented there. (Pp. ix-x)

To back up this belief in the threat of satanic ideologues, Raschke lumps all the disparate evils and aberrations of history and of present society into



a grand amalgam held together by the glue of satanic ideals. The underlying message to the reader is that a grand conspiracy of Satanism is operating to tear apart our society. It is the single dynamic force that unites the drug-crazed teenager who draws pentacles on his murder victim with Adolf Hitler and the "occult underground" of the Third Reich, Charles Manson, international drug cartels, transnational terrorist organizations, child pornographers, Anton LaVey and the Church of Satan, Michael Aquino and the Temple of Set, the McMartin Pre-School case, Dungeons & Dragons, the Matamoros murderers, Alice Cooper, the Rolling Stones, Ozzy Osborne, Aleister Crowley, the "Night Stalker" Richard Ramirez, ad infinitum. Quite a *large* as well as nasty kettle of rotting flesh this Satanism business is, *isn't it?* Most informed readers who know better than to believe in this sort of magical thinking in which everything is inter-

connected with everything else, and is also *therefore* implicitly a conspiracy, need only look at the photographs in the center of Raschke's book, for they thematically lump together most of the rogues and infidels mentioned above and essentially sum up the Gospel According to Raschke: Satanism is all around us, it's bad, and it's our job to fight it.

Although a professor of religion, and the author of several books on the subject, Raschke makes a number of misinterpretations of the historical evidence of Satanism as an ideology and a movement in his chapter titled "The Occult Underworld." He pleads for reconsidering conspiracy theories, and he then sets about mangling the known evidence we have for the beliefs and practices of heretical sects like the Cathars and the "Luciferans," who were not devil-worshipers but a sect of Waldensians (*not* Cathars, as Raschke has it). Raschke, though, tells of them worshiping black cats and kissing toads and buttocks.

Many other factual mistakes occur in this chapter. Raschke's knowledge of the historical literature concerning Satanism or "diabolism" is apparently limited. I have found an overwhelming *lack* of evidence for sects or groups or activities of these sorts throughout history. (See Noll 1990.) It was only at the end of the nineteenth century that the Black Mass and a philosophy of Satanism are recorded as among the pastimes of the decadent upper classes in France. There is no evidence of the Inquisitors stumbling upon a devil-worshiping cult or any performance of the familiar Black Mass that inverts the Roman Catholic rite (but with a few salacious additions). All of this is more fantasy than reality, as British historian Norman Cohn so skillfully documents in his book *Europe's Inner Demons: An Enquiry Inspired by the Great Witch Hunt* (1975), which is an essential historical reference for anyone wishing to place the present Satanism scare into a historical context.

Raschke has a bone to pick with anyone who dares to challenge the threat of Satanism to our society. Kenneth Lanning, a special agent of the FBI who has been one of the most influential critics of claims of satanic crime, is charged with being one of the "best friends" of "satanist criminals" (p. 75). Without addressing Lanning's publications or conference papers in which he presents his analysis of the evidence for his critical position, Raschke merely resorts to an ad-hominem argument, charging that Lanning writes with "the literacy, the research sophistication, and the rhetorical finesse of a high school sophomore." Lanning's work is never addressed; nor is the work of any other skeptic challenged in depth and on its own merits.

Intellectuals are suspect, too. In his Preface, Raschke boldly asserts that "the American intelligentsia has a tremendous capacity for what psychologists call 'denial.' The trained academic mind has a difficult time accepting that there are people who could willfully do evil for the sake of doing evil" (p. ix). Raschke, it seems, is only interested in rhetorical flourish. He does not seem interested in considering the disconfirming evidence or opinions. This book, even though written by an academic and an intellectual, is therefore not recommended.

On the other hand, Robert Hicks's book, *In Pursuit of Satan: The Police and the Occult*, will be considered the definitive volume on this issue for some decades to come. It is a classic in its genre. Hicks presents the evidence for *both* sides of almost every issue involving Satanism in our society. (Hicks's approach will already be

familiar to readers of his two articles on these topics in the SKEPTICAL INQUIRER, Spring and Summer 1990.)

Hicks's book is a cogent, relentless critique of the evidence for the influence of Satanism. "Occult" crime, day-care-center controversies (including the McMartin case), the Matamoros incident, Dungeons & Dragons, the subculture of mental-health professionals concerned about Satanism and its alleged creation of multiple personalities, and many other topics are discussed in depth and with exemplary scholarship.

It would be impossible to survey every topic Hicks covers in his 420-page tome, but those interested in the issue of Satanism are strongly advised to make his *In Pursuit of Satan* the *one* book on this controversy that they simply *must* own. It is *that* good, *that* comprehensive, and *that* important. Hicks is to be congratulated on his intellectual breadth and his peerless research.

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The Well-Built Mind

Brain Building: Exercising Yourself Smarter. By Marilyn vos Savant and Leonore Fleischer. Bantam Books, New York, 1990. 243 pp. Cloth, $18.95.

MARK W. DURM

"The essence of Brain Building is the taking of active control of your thought processes—developing mental tools to approach difficult problems in an effective fashion, freeing yourself from false assumptions and the mental hammerlock that lack of self-confidence and over-reliance on authoritarian opinion can have on you. You will learn to think with more clarity and with greater precision. You will learn to trust yourself. And as you achieve that trust, your intelligence will expand and your interests will broaden."

The quotation above is from the Foreword, written by Robert Jarvick, to an informative, educational, and enjoyable book written by Marilyn vos Savant and Leonore Fleischer. Vos Savant, known to many for her weekly "Ask Marilyn" column in the nationally syndicated *Parade* magazine, is reportedly the smartest person in the world (IQ 230), and Fleischer (IQ 183) is not far behind her.

The book is very readable but was *meant to be put down!* The authors want the reader to read *only* a chapter a week for 12 weeks. Why? Because each chapter represents something different and the reader should master each one (and its Brain Builders) in turn before progressing. (There are a total of 155 Brain Builders interspersed throughout the text.) Some of the chapter titles are "Brain Vocabulary," "Building a Logical Mind," "Building Communication," "Building Information," and "Building Perspective," concluding with a chapter titled "The Well-Built Mind!" for week 12. At the end of each chapter, the authors include a "Brief Quiz" followed by the answers.

In addition to the questions in the text and the quizzes, the authors give the reader nuggets of wisdom throughout the book. The main objective of the text is to create independent thinkers, because the authors believe, and rightfully so, that too many people are not. They write:

> Those who are not independent thinkers begin to see things selectively, to reinforce their previously held beliefs. The process begins early in life, and the longer it's allowed to continue, the harder it will be to shake those erroneous beliefs. As with any habit, the longer you hold onto a misconception, the harder it is to let it go. That's one reason older people are often thought of as slow learners; they have a lot more unlearning to do. One of the reasons that children are able to learn so quickly is that their personalities aren't yet fully developed and planted firmly in front of their intellects. If you stay young intellectually, you'll learn better. Mental old age is often not so much a matter of hardening of the arteries as it is hardening of the attitudes.

Vos Savant and Fleischer spend several pages warning the reader not to allow this "hardening of the attitudes" to occur.

The writers continue to chide the reader for believing ideas for which they have no evidence. They ask if the reader is relying upon opinion more than information. Then they drive home the point that even information does not, in any stretch of the imagination, equate with the truth. They use the metaphor that searching for truth is like panning for gold, because "information" comes to us ceaselessly, as does the water and its contents when we are panning, and we should discard most of it as debris and choose only those pieces that show signs of promise. These pieces of promise they call "data." They then write: "Hidden in the data are facts, which do contain gold, but which must be put through a cleansing and refining process to remove impurities and reveal its perfections. Then, and only then, are you rewarded by the gleam of purest gold, the Truth" (p. 180).

The greatest barrier to Brain Building, according to the text, is the inability to admit mistakes. The authors argue that central to intellectual growth is the ability to change beliefs when one discovers one is wrong. Most people, however, are afraid that if they admit they are wrong about one thing then they may start questioning everything. And if one questions everything "the earth wobbles under your feet, causing anxiety and insecurity. But take heart. And take courage. The earth always wobbles when you're searching for the truth" (p. 211).

This searching for truth is corollary to mental objectivity, and the need for objectivity of thinking is the second main point of the text. The authors warn their readers *not* to trust their feelings (subjectivity) because beliefs

and ideas are not necessarily right because they feel correct. Vos Savant and Fleischer use the Aristotelian theory as an example of this. The theory postulated that two objects of unequal weight would fall at unequal speeds. This belief was held for many centuries. It was wrong but it felt right.

At this point it would be appropriate to conclude this review. But, alas, vos Savant and Fleischer do not like to draw conclusions. They write: "Why should we draw a conclusion to our thinking process? Why should we ever stop thinking?" (p. 241). Therefore, let me leave you with one final quote: "Your intellectual ability can be described as your ability to distinguish, to a finer and finer degree, sense from nonsense" (p. 242-243).

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Last Gasp of the Shroud Defenders

The Shroud and the Controversy. By Kenneth E. Stevenson and Gary R. Habermas. Thomas Nelson, Nashville, Tenn., 1990. 257 pp. Cloth, $15.95.

GORDON STEIN

When the shroud of Turin was finally carbon dated after 20 years of effort to make arrangements to do so, the results of the three independent laboratories all agreed. They showed that the shroud dated from around A.D. 1300. This, of course, meant that it was a medieval forgery and not the burial cloth of Jesus. Many thought that the carbon dating was the final nail in the coffin of the shroud. Yet, if this new book by theologian Gary R. Habermas and engineer Kenneth E. Stevenson (both fundamentalists) is any indication, the shroud will not be allowed to fade into oblivion. The authors downplay the results of the carbon datings as being merely "suggestive."

If the carbon dating were the *only* evidence against the shroud, it might be only suggestive; but it is not. Also strongly pointing against authenticity are the following: (1) the lack of a historical record for the shroud before 1350, (2) gross anatomical flaws in the image (e.g., no "thickness" between the front and back images), (3) the medieval appearance of the image from an art history point of view (e.g., the hands over the genitals), (4) the ability of the image to be duplicated today using techniques available to a medieval forger, (5) the presence of a notice to the pope by Bishop D'Arcis, back in the fifteenth century that the forger had been identified and had confessed.

The present book crosses the line between scholarship and polemics. Distortions abound on every page. All negative evidence is discarded because it fails to meet high standards, and yet all positive evidence in favor of authenticity is admitted with almost no regard for standards. Carbon dating is, of course, played down as a valuable and accurate technique.

One or two old examples of inaccurate datings are dusted off and trotted out.

Worse yet, distortion and misunderstanding of the work of Joe Nickell are rampant. In order to dismiss Nickell's recreation of the shroud using techniques possible for a medieval forger, the authors misrepresent what Nickell did and found. The real lack of accuracy on their part can be most clearly seen in Appendix C of the book (pp. 215-221), which contains a rough summary of the pro-shroud position. The "refutations A1-9" listed against the forgery position *are all invalid.* Let's summarize quickly: (1) Pigments or paint media *have* been found on the shroud (claiming that they haven't will not make the evidence go away). (2) The 3-D characteristics of the image are due to a "smoke and mirrors" set of corrections of the image made by the Shroud of Turin Research Project (STURP) researchers *on the assumption that a body was contained in the shroud.* That was, of course, the very thing that they were trying to prove, and so it could not properly be assumed. (3) The superficial nature of the image is *exactly what would be expected* if Nickell's technique had been used. (4) The issue of plateaus and saturation points is not relevant to Nickell's technique. (5) If a brush was not used, then we would not expect brush strokes. There are nondirectional means of application. (6) Capillary flow would not be observed on the image at this date because almost all of the pigment has flaked off. What is left is a chemical discoloration of the cellulose fibers themselves. (7) The pigments have long since fallen off, as just mentioned, so how a fire would have affected them is moot. (8) The effect of water is also moot for the same reason (9) The nontraditional body image speaks more *toward* the medieval forgery than against it.

How likely is it that all nine of the authors' responses to the forgery position would be invalid when they claim to have reviewed the shroud literature? Rather, it suggests a conscious effort to deceive. This book appears to be a last-gasp defense of a largely discredited relic by some people who seem to be afraid that the shroud may be destined to join the thousands of other relics already discredited.

Dr. Stein is a physiologist and a CSICOP consultant.

One Side of the UFO Debate

UFOs in the 1980s: The UFO Encyclopedia, Vol. 1. By Jerome Clark. Apogee Books, Penobscot Bldg., Detroit, MI 48826. 1990. 234 pp. Cloth, $65.00.

JAMES E. McGAHA

The new *UFO Encyclopedia,* written by Jerome Clark, was commissioned by the Santa Barbara Centre for Humanistic Studies (for whom J. Gordon Melton is listed as Senior Research Associate), Omnigraphics, Inc., and Apogee Books. This is the first in a projected three-volume set that will make up the complete *UFO* encyclopedia by Clark. Accord-

ing to the advertising flyer: "Because of the immediate need, Volume 1 was designated to cover UFOs in the 1980s and hence call attention to the current leadership in UFO research and the spectrum of important issues presently before the ufological community."

Indeed, this volume definitely is concerned more with the politics of promoting belief in UFO abductions and an alleged government conspiracy to hide evidence of crashed saucers than with giving an honest appraisal of the whole situation. I was surprised to see that, out of 84 entries, we find only 8 new cases to represent the last ten years! Especially after Jerry Clark's comment in *The Fringes of Reason* (Harmony Books, New York, 1989, edited by Ted Schultz, p. 161) that Ronald D. Story's *"Encyclopedia of UFOs,* [Doubleday: New York, 1980] is dated. The 1980s have proved to be an extraordinarily eventful time in ufology, and a new reference work correcting the old one's shortcomings and covering the intervening decade's developments is sorely needed." What turns out to be the "extraordinary" developments of the past decade are the escapades of Budd Hopkins, Whitley Strieber, and William Moore.

Predictably, the longest entries are on the "abduction phenomenon" (13 pages), "crashes of UFOs" (18 pages), and "extraterrestrial biological entities, or EBEs" (25 pages), while the "fantasy-prone personality hypothesis," which truly represents a key explanatory element of the UFO phenomenon—especially with regard to alleged abductees and contactees—is quickly dismissed in one and a half pages.

The total of 84 entries breaks down as follows: 26 people, 12 publications, 8 cases, 23 organizations, and 15 features (or miscellaneous subjects). Story's original *Encyclopedia of UFOs,* in comparison, contained roughly 300 entries: one-third people, one-third cases, and one-third features, i.e., about 100 in each category.

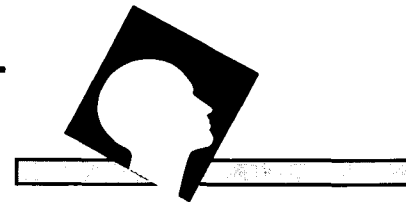
Another disappointment is the total lack of illustrations. Clark's *Encyclopedia* contains no photos or artwork of any kind. One would think that at least in the case of the "Gulf Breeze Sightings," which is treated sympathetically by Clark as a possible example of extraterrestrial intelligence (or stupidity), we would see what these possible spacecraft look like. Does not this "extraordinary development" warrant some kind of illustration?

In a short entry on the Committee for the Scientific Investigation of Claims of the Paranormal, CSICOP is characterized as "an effort by intellectuals and academics to combat unorthodox beliefs about extraordinary phenomena, including, among many others, UFOs" (p. 49). This reviewer would submit that it is not so much the beliefs themselves that CSICOP wishes to combat as it is the lack of critical thought that characteristically produces those beliefs.

If you are expecting to find an objective and definitive reference work that presents all arguments, pro and con, so that you can make an informed decision about UFOs, you will not find it in Clark's book. All the pro arguments are there, and most of today's leading proponents are patronized to the extreme; but the critical side is so watered down, it is virtually unrecognizable.

James E. McGaha, founder of the Tucson Skeptics, is a serious amateur astronomer and a Fellow of the Royal Astronomical Society. He is a major in the U.S. Air Force and aircraft commander of an EC-130 Hercules.

Some Recent Books



The Davenport Conspiracy Revisited. Marshall McKusick. Iowa State University Press, Ames, IA 50010, 1991. 193 pp. $22.95, cloth. A detailed exposition on the sensational archaeological mystery of the 1880s—alleged evidence in Iowa and Illinois of a lost civilization of Mound Builders of European or Near Eastern origin, the discovery that it was a hoax, and the scientific scandal and maturation of archaeology that followed. Updated, since the original 1970 version, by chapters about a resurgence of interest in the past two decades in similarly specious archaeological "discoveries" about North American prehistory—speculative and demonstrably false theories about exotic migrations from Europe and the Middle East to ancient America.

Fantastic Archaeology: The Wild Side of North American Prehistory. Stephen Williams. University of Pennsylvania Press, Philadelphia, 1991. 432 pp. $28.95, cloth; $14.95, paper. A Harvard achaeologist's thorough and entertaining excursion into the "wild side"—archaeology based on fantasy rather than on carefully recovered prehistoric evidence. The author describes numerous interesting cases of "fantastic archaeology," from its nineteenth-century golden age to its still rambunctious present; shows how archaeology really works to unravel the story of America's past; and argues that the truly fantastic past is in the hard-won knowledge of the first inhabitants of North America from Pleistocene times to the arrival of the Spaniards—"a unique and fantastic tale, unknown, unfortunately, to most of the inhabitants of what we now proudly call the United States of America."

Health Schemes, Scams and Frauds. Stephen Barrett, M.D., and the Editors of Consumer Reports. Consumer Reports Books, 9180 LeSaint Dr., Fairfield, OH 45014, 1991. 256 pp., $13.95, paper. A classic look at quackery and health frauds, newly revised and updated. Topics include fringe-medicine, vitamin pushers, dubious cancer therapy, arthritis maltreatment, weight-control fads and fakes, the mercury-almagam scare, chiropractic, and the overselling of water safety, plus general chapters on quackery, fact vs. fiction, and 38 ways to avoid being "quacked."

Interpreting Evolution: Darwin and Teilhard de Chardin. H. James Birx. Prometheus Books, Buffalo, N.Y., 1991. 326 pp. $29.95, cloth. Both a critical survey of the history of evolutionary theory and an exploration and comparison of the lives of the eminent naturalist and the Jesuit paleontologist/philosopher and their contrasting world-views. Also emphasizes the need to distinguish between the fact of evolution and interpretations about its processes.

Maybe Yes, Maybe No: A Guide for Young Skeptics. Dan Barker. Illustrated by Brian Strassburg. Prometheus Books, Buffalo, N.Y., 1991. 80 pp. $11.95, paper. The story of ten-year-old Andrea, a skeptic confronted with her friend's story of ghosts and

a haunted house, is intended to teach the essentials of skepticism to children in simple language and entertaining style.

Myth Makers: Epigraphic Illusion in America. Edited by James P. Whittall. Early Sites Research Society, Long Hill, Rowley, MA 01969, 1990. 90 pp. $12, paper. A collection of papers on epigraphic hoaxes. Subjects include the Roanoke Stones hoax, the Kentucky Ogam, a "Semitic inscription" in Maine, and the Los Lunas, New Mexico, trailstone fraud.

Psychology of the Unconscious: Mesmer, Janet, Freud, Jung, and Current Issues. William L. Kelly. Prometheus Books, Buffalo, N.Y., 1991. 210 pp. $27.95, cloth. The human unconscious remains a vast, virtually uncharted territory in psychology. Here a psychotherapist and Georgetown University psychologist brings the subject to life by tracing the paths of four major trailblazers. He follows that with a discussion of recent findings in five major areas of research: mind-body (psychosomatic) illnesses, sleep disorders, dream therapy, and parapsychology.

Sai Baba's Miracles: An Overview. Edited by Dale Beyerstein. Dale Beyerstein, Department of Philosophy, Vancouver Community College, 100 W. 49th Ave., Vancouver, B.C. V5Y 2Z6, Canada, 1991. 125 pp. $9.00, paper. A summary of the claims made about the Indian guru and holy man Sri Sathya Sai Baba and of various investigations of them.

Science in a Nanosecond: Illustrated Answers to 100 Basic Science Questions. James A. Haught. Illustrated by Gary T. Hahn. Prometheus Books, Buffalo, N.Y., 1991. 110 pp. $12.95, paper. Simple, illustrated answers to the kinds of questions curious young people ask about the world around them: Why is the sky blue? What is light? What holds an airplane up?

The Transcendental Temptation: A Critique of Religion and the Paranormal. Paul Kurtz. Prometheus Books, Buffalo, N.Y., 1991. 500 pp. $16.95, paper. The first paperback edition of this major philosophical and empirical examination of the seductive lure of belief systems that satisfy the wish for certainty, security, and salvation. The book has received wide acclaim and provoked controversy. Our reviewer (Winter 1987-88) called it "an excellent book" and strongly recommended it "to all who place a high value on rationality."

—*Kendrick Frazier*

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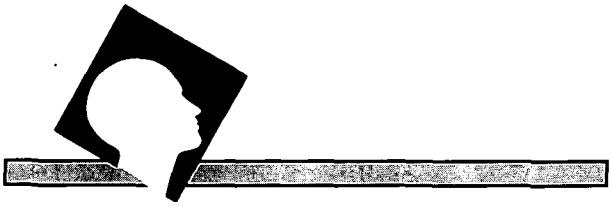
Articles Of Note



Anderson, Philip W. "On the Nature of Physical Laws." *Physics Today,* December 1990, p. 9. Princeton physicist addresses distortions/misunderstandings about science and determinism. Emphasizes the astonishing precision with which fundamental constants can be measured and strongly critcizes those seeking to demonstrate an experimental effect of mind on matter who claim positive results with marginal data.

Barrett, Stephen, M.D. "Quack, Quack." *American Health,* March 1991, pp. 59-63. Quackery and health frauds aren't as easy to spot as you might think. Barrett presents 30 succinct strategies "to help you avoid getting quacked."

Baskin, Yvonne. "Creationist School Lives On." *Science,* 251:738, February 15, 1991. News & Comment report on the California Department of Education's battle to revoke the Institute for Creation Research's license to grant master's degrees for creationist theses.

Blackmore, Susan. "Physics on the Brain." *New Scientist,* January 5, 1991, p. 53. After attending a strange colloquium on "The Science of Consciousness," psychologist Blackmore ponders the subjective nature of the subject.

Campion-Vincent, Veronique. "The Baby Parts Story: A New Latin American Legend." *Western Folklore,* 49(1):9-25, January 1990. A horrific science-related rumor has spread through Latin America in the past five years, namely, that children are being smuggled into the United States to be killed for their organs. This article traces the legend's history and its folklore and propaganda elements. Inherent in the rumor are fears of American power and of medical technology.

Close, Frank. "Cold Fusion I: The Discovery That Never Was." *New Scientist,* January 19, 1991, pp. 46-50. Fascinating, detailed, critical narrative report on the cold-fusion controversy by a physicist who became involved in the unsuccessful efforts to confirm the dramatic "discovery."

"Cold Fusion—One Year Later." *Energy & Technology Review,* 1-25, October 1990. A special issue of the Lawrence Livermore National Laboratory journal with two unsigned articles and a roundtable discussion on cold fusion. One article is supposedly a "history" of cold fusion, but says little about pre-1989 work. The second article is about cold-fusion experiments at LLNL. In the discussion, laboratory scientists talk about the experiments, the social phenomenon, and "pathological science."

Davidson, Keay. "What Makes Us Who We Are?" *Image (San Francisco Examiner).* January 20, 1991, pp. 11-15. Science journalist attempts to sort fact from fiction and politics from science in the nature vs. nurture debate.

Ellis, Bill. "The Devil-Worshippers at the Prom: Rumor-Panic as Therapeutic Magic." *Western Folklore*, 49(1):27-49, January 1990. Suicide, legends of satanic cults, and normal teenage rebellion mixed together in some Eastern Pennsylvania towns in 1987 when rumors spread that Satanists were going to kill people at local proms.

"Faith Surgery." *Sentinel*, 26(6):41, 1990. A brief article about a "faith therapy" session conducted by Canadian military chaplains at the National Defence Medical Centre in Ottawa. The service was declared a success but no examples of results were offered.

Furnham, Adrian. "Hooked on Horoscopes." *New Scientist*, January 26, 1991, pp. 33-36. Psychologist explores why horoscopes are so popular and why, despite the overwhelming scientific evidence that astrology and graphology are nonsense, it is so difficult to dissuade believers. Discusses the Barnum effect, the "Pollyanna principle," and selective memory, all of which work to have us emphasize and recall positive statements about ourselves and deemphasize and forget negative statements.

Gagne, Helene, and Stuart J. McKelvie. "Effects of Paranormal Beliefs on Response Bias and Self-Assessment of Performance in a Signal Detection Task." *Australian Journal of Psychology*, 42(2):187-195, August 1990. People who believe in ESP tend to rate themselves higher on the accomplishment of psi-related tasks than nonbelievers. Does this self-confidence carry over to tasks not related to psi? In this experiment it did not.

Gardner, Martin. "The Search for the Holy Grail." *Free Inquiry*, Winter 1990/91, pp. 55-57. Essay about parapsychologist John Beloff and review of Beloff's *The Relentless Question: Reflections on the Paranormal.*

Grossman, Wendy. "May the Force Be With Us." *New Scientist*, March 2, 1991, p. 59. Column protests the media's notion of "balance" regarding their reports on paranormal claims: usually such claims get published without skeptical criticism, while skeptical views are rarely reported without comment from "psychics." TV and radio present particular problems. She writes: "Paranormal claims . . . are presented as if they were social issues rather than as scientific ones. . . . A program about a scientific issue presents evidence. Programs about social issues, on the other hand, have debates, and people 'are entitled to' their opinions." Yet, notes Grossman, paranormal claims are assertions of fact, not opinion, and should be "verified by experimentation."

Klass, Philip J. "Did the U.S. Government Set Up a Top Secret UFO Working Group?" *Scientific American*, February 1991. Investigative review showing the errors and falsehoods in Howard Blum's *Out There;* provides some additional detail not in Klass's shorter review in *SI*, Winter 1991.

Kottmeyer, Martin S. "Dying Worlds, Dying Selves" *UFO Brigantia* (U.K.), January 1991, pp. 24-32. World-destruction fantasies are frequently encountered in the occult literature. The author explores how psychology has attempted to account for them.

Lamolinara, Guy. "A Television Show Production Shrouded in Mystery." *Library of Congress Information Bulletin*, 49(20):342, October 8, 1990. A brief report on the production of a tele-

vision show on Houdini for the Library of Congress's Global Library Project, and the unusual circumstances that supposedly made the producers feel Houdini was haunting them.

Lippert, Randy. "The Construction of Satanism as a Social Problem in Canada." *Canadian Journal of Sociology*, 15(4):417-440, Fall 1990. Satanism is perceived as a growing problem in Canada, just as it has been in the U.S. Lippert analyzes the process by which the issue has been "legitimized" by media reports, official statements, etc.

Mahoney, William. "MCA Testing Strip on Supernatural." *Electronic Media*, 9(47):8, November 19, 1990. MCA television is making plans for a series called "Report from the Unknown," about supernatural and paranormal phenomena. If it goes into production it will be a half-hour long and intended to run five shows a week late at night.

McKelvie, Stuart J. "Student Acceptance of a Generalized Personality Description." *Handbook of Replication Research in the Social and Behavioral Sciences*. James W. Neuliep, editor (a Special Issue of the *Journal of Social Behavior and Personality*, vol. 5, no. 4 (1990), pp. 92-96. Psychologist obtained handwriting samples from 58 psychology students, who then received a generalized personality profile. They rated the sketch as a good or very good description of themselves, and their rating of belief in graphology increased relative to a control group who did not receive the sketch. Results support Forer's 1949 claim that belief in the validity of a test can be influenced by generalized feedback.

Milligan, Linda. "The 'Truth' About the Bigfoot Legend." *Western Folklore*, 49(1):83-98, January 1990. Milligan reports on various theories about Bigfoot, suggesting that belief in a UFO connection may be undermining the more familiar "terrestrial" hypothesis.

Palsson, Gisli, and E. Paul Durrenberger. "Systems of Production and Social Disclosure: The Skipper Effect Revisited." *American Anthropologist*, 92(1):130-141, March 1990. Do the skill, luck, or hunches of the ship's captain affect the size of the fishing boat's catch? The authors compare studies in Iceland, where this belief is widely held, with studies in Canada and the U.S. Results were inconclusive. They also consider the causes and results of such beliefs.

Pool, Robert. "Science Literacy: The Enemy Is Us." *Science*, 251:266-267, January 18, 1991. Report stimulated by work of scientists Robert Hazen and James Trefil (authors of new book *Science Matters: Achieving Science Literacy*) showing that scientific illiteracy extends to science itself: scientists often know little or nothing about fields of science outside their own.

Read, Allen Walker. "Folk Criticism of Religiosity in the Graffiti of New York City." *Maledicta*, 10:15-30, 1990. Folklorist studying graffiti finds a considerable element of skepticism in folk attitudes.

Rooney, Karen J. "Controversial Therapies: A Review and Critique." *Intervention in School and Clinic*, 26(3):134-142, January 1991. An extensively researched article on controversial techniques being used on children with various learning disorders. Rooney discusses the use of tinted lenses, orthomolecular diets, drug treatment for dyslexia, and visual training techniques. She identifies the

research done (or not done) in support of each therapy and provides lists of questions for anyone considering them.

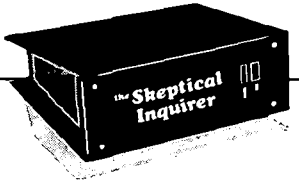
Rosenblatt, Roger. "A Woman At Christmas." *Life*, 13(15):43, December 1990. A brief article about Rita Swan, who dropped out of Christian Science and founded CHILD (Children's Health Care Is a Legal Duty) after her son died from meningitis.

Thomas, D. J. B. "Near-death Experiences." *The Lancet*, 337:116, January 12, 1991. Letter by physician giving reasons for skepticism about claims of NDEs during life-threatening medical situations.

Victor, Jeffrey. "Satanic Cult Rumors As Contemporary Legend." *Western Folklore*, 49(1):51-81, January 1990. Victor begins with a particular flap of satanic-cult rumors but then attempts to show a pattern: how similar rumors spread about Christians in the Roman era, about Jews in the Middle Ages, and so on. He also recalls cattle mutilations, the Procter & Gamble logo, and child-care Satanism rumors.

Wintsch, Susan. "You'd Think You Were Thinking." *Mosaic*, 21(3):34-48, Fall 1990. A report on current studies of the cognitive characteristics of dolphins. Experiments are attempting to evaluate cetaceans' ability to understand and use symbols and language. Skeptical views and ethical considerations are also discussed.

—Kendrick Frazier and Robert Lopresti



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CSICOP Headquarters Progress Report

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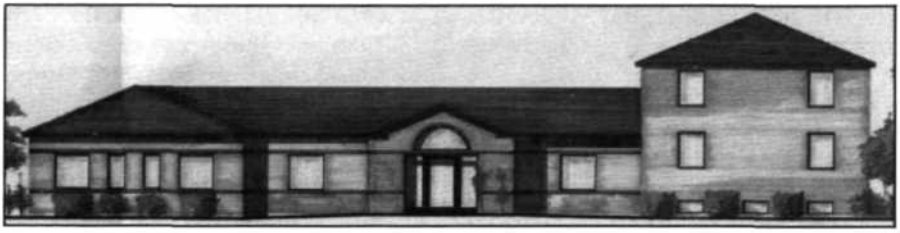

The Phase I building, a combined conversion-construction project awaits spring occupancy.

Phase I of The Center for Inquiry, CSICOP's new headquarters complex, was inaugurated at a gala luncheon on April 20 attended by more than 100 well-wishers. CSICOP Executive Committee member Philip J. Klass joined Paul Kurtz, Barry Karr, and other staff members in dedicating the new structure. Consolidating CSICOP and the SKEPTICAL INQUIRER administrative and production functions at the new site will enhance operational efficiency, while its location adjacent to the Amherst Campus of the State University of New York at Buffalo will streamline the staging of seminars and conferences and simplify CSICOP's outreach to the academic community. The 5,700-square-foot structure combines a new, custom-designed open-plan building with a completely renovated existing two-story structure. Occupancy is pending as this is written.

CSICOP is building this headquarters complex in cooperation with the Council for Democratic and Secular Humanism (CODESH), publisher of FREE INQUIRY magazine. Thanks to the generous support

of readers and friends, it has been possible to acquire the land and complete Phase I construction without incurring bank debt.

With Phase I complete, the focus turns to Phase II, an all-new building that will provide almost 25,000 square feet of space. It will house a permanent home for CSICOP's new research library, seminar/meeting rooms, additional office space, and other vitally needed facilities. Equally important, it will allow all of CSICOP's Buffalo-area operations to be consolidated at the suburban site, further enhancing efficiency and setting the stage for growth.

A total of $1,500,000 must be raised before we can embark on Phase II construction. If our fund-raising is to succeed, the support of our readers and friends will be critical. Please give generously. If you have contemplated making an extraordinary gift to CSICOP, this is the moment. If you would prefer to arrange a significant gift in three yearly installments, we will be happy to arrange your pledge.

The names of donors of $1,000 or more will be entered in the commemorative album that will be on display in our new building. The names of donors of $5,000 or more will be shown on a metal plaque in the lobby. Seminar rooms in the Phase II building will be named after patrons who give as much as $25,000, and a wing of the building will be named after anyone giving $100,000 or more.

Please give today. Make checks payable to CSICOP and mail to the CSICOP Center for Inquiry Capital Fund Drive, Box 229, Buffalo, New York 14215-0229.

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Forum

Teaching the Way Of Science

MICHAEL WIRTH

For about 12 years, I've been teaching a course designed specifically to overcome the dislike and ignorance of science by college students that Vincent Safuto recently wrote about in this column (Winter 1991). Now called "The Way of Science" (WOS for short), the course has three primary goals (and it apparently succeeds very well in these, if the student questionnaires are to be believed). The first aim is to reinterest students in science and to overcome their antagonism. The second is to make them think more like scientists, that is, to weigh evidence in the light of skeptical/rational principles associated with good science. The third goal is to increase their knowledge of fundamental "facts" and unifying theories of the natural sciences (evolution, plate tectonics, etc.).

The course begins with a series of statements from a variety of sources, ranging from the *National Enquirer* to legitimate scientific journals. The students are asked to discuss the validity of the statements. They soon realize that some "facts" that everyone "knows are true" are simply rubbish and that some strange and extraordinary claims are, indeed, good science. Once convinced that they need to keep an open mind, we move into the first major unit of the semester: a "con job." The students are presented with readings on Uri Geller's "paranormal" powers. All the sources appear (to the class) to be very reliable: all are Ph.D. physicists (Taylor, Sarfatti, Targ, and Puthoff in their *Nature* paper). Without lying or expressing an opinion, those of us who teach WOS subtly try to convince the students that Geller may well be breaking the laws of physics. When the readings and discussions have come to a close, most of the class (frequently 100 percent) will say that the evidence for "paranormal" powers is convincing and solid.

The material that follows this portion of WOS reveals that they have been "taken." They read Randi on Geller and Project Alpha and many chapters from *Paranormal Borderlands of Science*, see videos of Randi in Australia (which includes a short metal-bending demonstration) and on the Bermuda Triangle (Nova). When the students realize that they have been following a false trail, some get confused, some get amused, but almost all become fascinated. We then spend time talking about the nature of good evidence (Occam's Razor, "extraordinary claims need extraordinary evidence," repeatability, etc.).

From then on, WOS maintains the themes of strong vs. weak evidence and how there is frequently conflict over conclusions. This conflict is

sometimes within the scientific community, and frequently between scientists and nonscientists. We begin by reading "Asimov's Corollary," to point out that the public is almost always wrong when choosing sides in scientific "heresies." We then move to the development of plate-tectonic theory (conflict within the scientific discipline) and then to Lysenkoism and creationism (conflict between scientists and nonscientists, with some minor parallels thrown in for "spice" (laetrile, the "war on drugs," etc.). Most of our students are unaware of the evolution/creation problem, and of the effect that creationists have had on their own education. For many of them, the revelation is disturbing. In addition, most students get their first real understanding of the fact and processes of evolution in this sequence.

After these two topics, we move to the conflict over environmental disaster, so long predicted by many biologists and ignored or denied by the public. We concentrate on one effect only (time is very limited): the evidence for global warming. (Covering this topic also allows the faculty to talk about some basic chemistry, photosynthesis, respiration, etc.)

The course finishes by coming full-circle, in a sense. We began with extraordinary claims (the "paranormal") and we return to ideas that are even stranger and more fascinating: the birth, expansion, and death of the universe; Einsteinian relativity; black holes; etc. Now, however, they see that these "affronts to common sense" have good supporting evidence. When this segment ends, I try to spend one class looking back over the semester and comparing science, religion, and art as ways of knowing.

Two of us now teach multiple small sections of WOS as part of the new freshman general-education requirement. (I am a biologist; the other is a physicist.) We will soon have a third colleague teaching additional sections. It's a rather difficult course to teach. (Few of us are trained in so many different areas of science.) In spite of this difficulty, WOS has been successful; even students who fail frequently say that they now appreciate (and even like) science and that their way of thinking has been changed.

If any readers of the SKEPTICAL INQUIRER would like a syllabus for WOS, I'd be happy to oblige.

Michael Wirth teaches biology in the Natural Science Division, New England College, Henniker, NH 03242.

The Symbolic Significance Of Modern Myths

ROBERT BARTHOLOMEW

In an effort to understand the widespread persistence of modern myths, like those about UFOs and Bigfoot, it can be illuminating to examine their symbolic function by tracing the evolution of earlier motifs. This can be achieved by analyzing such myths as legitimate, albeit erroneous, social realities—the same status afforded by anthropologists to head-hunting and witchcraft beliefs in many "primitive" societies.

In the case of UFOs, their power and function have increased exponentially, to the point where, ironically, contemporary "encounters" resemble accounts attributed to early religious prophets and magical fairy stories. In the latter instance, thousands claimed to have seen fairies while others were temporarily abducted to Fairyland. Hard evidence included photographs, footprints, fairy rings, and eyewitness testimony. In the former case, witnesses were given a glimpse of heaven and offered the prospect of eternal life. Today, UFOnauts typically are purported to possess extremely long,

sometimes immortal lifespans, often hailing from a utopian world that has extinguished disease and war through technological and philosophical evolution.

During the past 25 years a new motif has emerged involving the association between Bigfoot-type creatures and UFOs, fostering popular speculation that Bigfoot is an extraterrestrial. During this period, UFO-abduction accounts increasingly depict Bigfoot-like UFOnauts. Previously Bigfoot was portrayed as a shy, nocturnal man-beast, a "noble savage" living in harmony with nature. But while the legendary Bigfoot possesses extraordinary physical abilities (strength, speed, agility, keen senses), it is clearly of a natural, secular order. The linking of Bigfoot with UFOs dramatically elevates the power and function of this previously terrestrial creature into the realm of the otherworldly. Concordantly, Bigfoot's powers now rival those once reserved for fairies, apparitions, and gods. Supernatural qualities attributed to Bigfoot include its ability to become partially transparent, suddenly vanish or appear, change shape, withstand bullets and motor vehicle crashes, even communicate telepathically. "Well-documented" Bigfoot-related abduction and possession cases also exist.

It is no coincidence that the annoying persistent annual sightings of "monsters" and "little green men" parallel the secularization of the American collective unconscious, seeking to resurrect the power and function of the gods within a plausible, rationalistic framework. While cause-and-effect, social, psychological, and natural-science explanations for UFO and Bigfoot sightings and beliefs have proved fruitful, these myths remain alive and well. Stressing the symbolic aspects of why we need our monsters and men from Mars provides us with a significant tool that has yet to be fully utilized in educating the misinformed within a historical perspective.

Robert Bartholomew is a sociologist at the Flinders University of South Australia.

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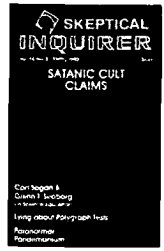

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Letters to the Editor

Gallup Poll of paranormal belief

In reading George Gallup and Frank Newport's "Belief in Paranormal Phenomena Among Adult Americans" (*SI*, Winter 1991) I find various odd assumptions, poorly worded questionnaire items, and non sequiturs in the interpretation of responses.

My belief that some people feel on occasion that they have been somewhere before or done something before, *when, in fact, they haven't, so far as they know* (the critical words in italics or others to the same effect are curiously lacking in Gallup and Newport's questionnaire definition of déjà vu), should not, by any stretch of the imagination, be regarded as a paranormal belief, unless I should also happen to believe that the déjà vu experience can be taken as evidence that the experiencer *has* been in the place in question or has done a similar deed in a previous life, or favor some other paranormal *explanation* for a feeling I have had myself.

Certainly the position of the stars and the planets *can* affect people's lives—probably most notably the lives of those astronomers who study such matters, make discoveries concerning them, and then publish them. I'm sure the rest of us have various thoughts stimulated by viewing particular configurations in the heavens, and our thoughts can certainly influence our subsequent actions one way or another; but a recognition of these self-evident truths and less obvious ways in which planet and star positions may affect our lives in untraceable and unpredictable ways does not make one a believer in astrology, as Gallup and Newport would have it. I also read astrology columns sometimes and look up my horoscope, but this shouldn't be taken as an index to my belief in astrology either.

UFOs are defined by Gallup and Newport in their questionnaire as "unidentified flying objects." Certainly by that mundane definition, practically all of us have seen "UFOs" and not merely *thought* we saw them, as Gallup and Newport would have it. Similarly, one can believe that UFOs are "something real," such as misinterpreted conventional aircraft or weird atmospheric phenomena, without believing in anything paranormal. Probably a lot of people think that some UFOs are misinterpretations and others are "just people's imagination," an option of belief not allowed for by Gallup and Newport. I've consulted a fortune-teller more or less as a lark—many others may have also. Finally, I wonder what percent of the people queried by Gallup and Newport thought they knew what the undefined term *New Age* meant but were thinking of something else, such as, for example, merely a type of music.

If there's a more thoroughgoing skeptic (in the CSICOP sense) than I am, I've never met him or her—and yet if I conscientiously answered Gallup and Newport's questions, I'd be counted as a "believer" in various areas in which I'm not. I am aware that there are problems inherent in all polling regardless of how well thought out the queries and inferences are, but there are inadequacies in Gallup and Newport's study that could have been easily corrected.

Ronald H. Pine
Resident Scientist
Illinois Mathematics and Science Academy
Aurora, Ill.

The report by Gallup and Newport illustrates that starting with the wrong theory leads to the wrong experimental results. One of the 18 questions in their poll on belief in paranormal phenomena is whether the respondent believes "in déjà vu, or the feeling that you have been somewhere or done something before." As the editor correctly points out, déjà vu is not a paranormal phenomenon, but is a perfectly normal psychological phenomenon. So it is not surprising that 56 percent of the public has had that experience. So have I.

This would be an important error if that was as far as it went. However, Gallup and Newport use this bit of data to create a totally incorrect conclusion, when they say "only 7 percent of Americans deny believing in any of a list of 18 paranormal experiences." But belief in déjà vu is one of these experiences. Therefore, if I say I believe in déjà vu (even though to me it is not a paranormal effect) then I am contributing to the 93 percent the authors claim believe in at least one paranormal phenomenon.

We now have to decide whether this was an innocent error or a trick designed to fudge the data and make it appear that almost the entire country believes in the paranormal. Perhaps we should know what Gallup and Newport think about psychic phenomena. We should know what their biases are.

Milton Rothman
Philadelphia, Pa.

I would have leaned toward a positive response to the "power of the mind to heal" while denying any acceptance of pseudoscience. I have not followed the field closely enough to know what is supported by experimental evidence or remains speculation, but the concept that neuro- or brain-chemistry induced by mood, attitude, stress, or physical activity can be synergistic or destructive to healing and immunochemistry is a legitimate scientific hypothesis unrelated to supernaturalism.

My point is only to emphasize the importance of carefully worded questions if an inference of belief in the paranormal is to be drawn.

Bill May
Los Alamos, N.M.

Gallup and Newport's citing of "the possibility of life on other planets" as a belief that "contradict[s] our physical senses and what is known 'rationally' " strikes me as strange. We have no sensory evidence either way outside of one tiny solar system. Considering the size of the universe, invoking the "sophisticated exploration of our solar system and the universe" to which the authors refer is analogous to performing a termite inspection on a condominium development by looking at one square inch of one house.

Another point is the imprecision of the question, "Do you believe in witches?" "Witches" could be interpreted either as people who get magical powers from the Devil or as people who adhere to the Wiccan belief and pursue certain occult practices. For the latter group, "believing in" them could mean either believing in their existence (which is incontrovertible) or believing that they have occult abilities and knowledge. Probably most people took the question as referring to the first of these, but a substantial portion of the 14 percent who answered affirmatively may have had one of the other interpretations in mind.

Gary McGath
Hollis, N.H.

Gallup and Newport equate reading the astrology column with belief. Why not get 99.9 percent credulity by asking if respondents read their fortune cookie messages? ... The silliness of Americans' beliefs cannot be accurately gauged by this survey.

Barbara Judd
Berkeley, Calif.

I was not amused by Gallup and Newport's article in which belief in "the ability of the mind to control and heal the physical body" is said to be one of several beliefs that "contradict our physical senses and what is known 'rationally.' "

Well, my mind controls my physical body quite well, thank you, and it is through just such a miracle that I am typing this letter. As for the ability of the mind to heal the body, this is well accepted by physicians and biomedical researchers and has been demonstrated innumerable times in scientific studies. Of course, since it isn't understood very well, it gets pushed into a sort of intellectual wastebasket called the "placebo effect." There's no point in scientists and medical doctors' taking this effect seriously, because there's no money in it for them. . . .

Bart Laws
Jamaica Plain, Mass.

. . . The positive response of professed Christians to the reincarnation question on the Gallup poll seems less surprising upon consideration of the fact that the question's definition of reincarnation, "the rebirth of the soul in a new body after death," contains nothing to distinguish it from the Christian doctrine of the resurrection of the dead.

Jeffry D. Mueller
Finksburg, Md.

Illness-hysteria analysis biased?

The mandate of *SI* is to investigate and debunk claims of the paranormal through a careful investigation of fact and a critical inquiry into popular credulity. Debunking political claims of the PLO hardly seems appropriate. Yet, in "The West Bank Collective Hysteria Episode: The Politics of Illness" (Winter 1991), readers are treated to the application of a model for social behavior to a political situation where to this day the facts are still too unclear to justify any definitive hypothesis. Further, conclusive statements are made presumptively, in a manner inconsistent with the evidence and more suggestive of a purpose of political and ethnic disparagement than credible scientific inquiry.

James R. Stewart cites little to support the total rejection of a toxic agent causing the 1983 outbreaks of mass illness in the Israeli-occupied West Bank. Access to the sites of the outbreaks by outside investigators was subject to the acquiescence of the occupying power, which had political reasons for wanting the charge of toxic poisoning discredited. Further, the fact that Israeli soliders in one area came down with the symptoms indicates an objective extraneous cause. In addition, local public-health authorities are reported by the author to have been insistent upon an external cause of the outbreak. Thus, the West Bank episodes form a rather poor place to study the social behavior of psychogenic illness when a critical examination would reveal no certain conclusion that the illness outbreak had no external stimulus.

But even if one were to assume the illness episodes to have been psychogenic, the conventional mass-hysteria model (stress plus an unpleasant stimulus resulting in symptoms among a susceptible class) is hardly to be lightly disposed of. Stewart seems unfamiliar with the high level of stress likely to be found in the West Bank deriving from the occupation (collective punishment, frequent brutality, the fear of dispossession, the particularly violent orientation of Israeli settlers in the Hebron area, etc.—*all unmentioned*).

The "craze" model explaining mass-illness phenomena (again, are they paranormal claims?) presupposes that a desire for reward induces the illness episode. Yet Stewart makes no distinction as to whether some or all of the outbreaks' real or purported victims were part of this craze. Because of this, a reasonable person might be led to suspect that he had a broader purpose in writing the article—namely, to discredit all Palestinians in the illness episodes out of some political or ethnic

bias. In any case, the behavior described is either too suspect in source or interpretation to be conclusively strong evidence of a craze pattern of behavior. Or the behavior described is not necessarily inconsistent with other explanations of the illness outbreaks (actual toxicity or mass-hysteria).

For example, the atmosphere in the hospitals is described as "carnival-like." In another case, we are informed, without attribution to a particular source, that the victims acted out their symptoms "almost on cue" for journalists. These statements are highly subjective and may have come from suspect sources seeking to discredit the Palestinians. Further, even if true in some cases, it hardly demonstrates that the original symptoms were not genuine or the result of a subjectively honest hysteria. Contemporary events validate the reason for refraining from jumping to the craze model so easily. Palestinians who are incontrovertibly injured from external causes (bullets, tear gas, etc.) in recent violence manifest the same behavior as that described in the article: flashing the V-sign, being treated as martyrs, engaging in attempts to discredit Israeli authorities to the media, and so on.

Finally, the article was just plain offensive in its disparaging tone and assumptions toward the Palestinians under occupation. . . .

Matthew C. Hogan
Dallas, Tex.

Intercessory prayer

While I personally do not believe intercessory prayer is an effective medical treatment ("Intercessory Prayer as Medical Treatment," by Jeff Witmer and Michael Zimmerman, *SI*, Winter 1991), there are several reasons for not trying to test the (possible) effect scientifically. (1) If one believes that God demands acceptance by faith alone, wouldn't he or she confound any experiment designed to provide evidence that prayer is efficacious? He or she might just as well perform daily miracles to ensure our belief. (2) No experiment to test prayer would or could have an effective control group unless the experimenter could guarantee that no one prayed for the controls—no parent, no family friend, no nurse or doctor—a guarantee no sensible critic is likely to accept. Incidentally Galton's error was to assume that prayer efficacy could be correlated with the numbers of those praying. Sound medical practice is that giving many times the optimum dose of a drug lessens its effect rather than enhancing it. Even the most skeptical could hardly imagine a god that metes out benefits proportional to the number of prayers offered.

Jeffrey Myers, M.D.
Memorial Hospital
Mount Holly, N.J.

As a Christian, I read your article on intercessory prayer with interest. I believe that its logic and conclusions are flawed.

The article states that "advocates of any medical treatment have an obligation to conduct appropriate studies before making extensive claims regarding effectiveness." Christians do not claim that medical science has proved prayer effective. The issue here is really twofold. First, can observation or experimentation prove the lack of effectiveness of intercessory prayer and, if not, are there other, nonempirical bases that would lead one to believe in the effectiveness of intercessory prayer.

A little thought shows that it is not possible to design a conclusive study on this subject. If the underlying theory is to have any meaning, then the subject of the experiment is God, not the patient. The patient's recovery is merely the operational measurement of God's action. If we theorize that He exists, is omniscient, and is the subject of the experiment, then how can the experiment be double-blind? A philosophical and spiritual (not scientific) bias of the reviewers caused them to treat God as a material stochastic process instead of

as an omniscient spiritual being.

It is important to remember the limitations of science. Scientific inquiry can determine that splitting an atom is a means of producing energy. Science cannot decide whether to use the resultant energy for industry or mass killing. Thus science cannot be the only source of truth in our world.

The Christian basis for belief in intercessory prayer is the teaching of Jesus Christ, who claimed that He was God in human form and the revealer of truth to the world ("I am the way, the truth and the life, no one comes to the Father but by me"). Here we reach the pivotal flaws in logic of the article (and with much of the content of the SKEPTICAL INQUIRER). The flaws are the assumption that all truth must be measurable with lab equipment and that human reason (not revelation validated by conscience) is the highest possible source of authority. In this worldview (the premises of which are philosophical, not scientific), the moral authority of Jesus Christ is inadmissible as evidence of truth.

Mark Gass
Durham, N.C.

While it seems feasible that patients may experience more rapid recovery knowing that there are people sufficiently concerned about their fate to take time praying for their good health, I feel that any statistical analysis of the effects of intercessory prayer can never produce evidence of the benefits, if any, of prayer.

First, it would be necessary to ensure that no prayers are offered independently on behalf of the population to be investigated. Any prayer for the benefit of a party allocated to the "neglected" set would invalidate the experiment.

Second, in order for the results to be accepted by both believers and nonbelievers, the believers would have to agree beforehand that their omniscient, omnipotent, omnipresent, and loving God could deliberately ignore the suffering of a sick person merely to satisfy the curiosity of a few researchers. Such a God would, of necessity, know of the suffering, the effects on those close to the sufferer, and any wish, whether or not expressed, that the illness be cured. The remission of illness would be possible in any case.

Ernest Jackson
Kingston upon Hull
Yorkshire, England

I'm glad *SI* tackled the subject of prayer and disease. However, I believe that a few moments' reflection will show that further studies are unnecessary. The human race already has conducted a massive experiment in this area, and the results should be conclusive to any reasonable person.

Prior to the nineteenth century, when (for practical purposes) modern medicine and sanitation methods began taking shape, how did people deal with illness?

Well, they had many folk remedies of varying utility and they had prayer. And people's lives generally were short, ranging on average up into the low 30s. A small percentage of people reached their 40s, fewer their 50s, and rare individuals passed 70.

For thousands of years, the ill prayed to a wide range of deities. For many centuries in the Christian world, the Christian god was beseeched in the face of plague and sickness with prayers, penances, flagellations, and donations.

If any form of prayer were efficacious, you would expect the supplicants' mortality rate to reflect it. For instance, a majority of the prayerful might reach their 60s, and they would live with the expectation—barring accidents—of reaching old age, as opposed to those praying to false gods or those who don't pray, whose mortality rates would remain high and their expectations limited.

Yet the devout can point to no such situation in history. The average lifespans in Medieval Europe, a time of great personal and cultural spirituality, didn't rise. And during the period when only

prayer was available, a variety of other illnesses afflicted mankind, such as bubonic plague, typhus, and smallpox, not to mention many less notorious infections. At no time is there any evidence that epidemics were halted before they'd run their natural course. Additionally, many people suffered from chronic, nonfatal illnesses or handicaps that now can be relieved.

Only when the scientific treatment of illness appears do we see a majority of people reaching their natural life-spans, while smallpox is destroyed, tuberculosis and polio suppressed, and typhus blocked by sanitation and treatments. Many other illnesses that once afflicted the prayerful are rarely heard of today.

Medicine doesn't claim perfection. No one escapes death, and illness still takes some in their prime. But the numbers today are nothing like the high mortality rates among the young in prayer-only societies. Faith may console people, but it certainly can't cure them.

William Sierichs, Jr.
Shreveport, La.

Jeff Witmer and Michael Zimmerman respond:

One of the major points in our original article was that "advocates of any medical treatment have an obligation to conduct appropriate studies before making extensive claims regarding effectiveness." We still fully support this position. Effectively, Myers, Gass, and Jackson all argue that no meaningful experiment examining the therapeutic effects of intercessory prayer can be designed. We are not advocating such experiments, since we recognize the many problems inherent in their design and implementation. Indeed, problems associated with experimental design only strengthen our point that all claims of efficacy must be carefully and fully documented.

It is important to be very clear about the claims that are being made for prayer. Although Gass states that "Christians do not claim that medical science has proved prayer effective," the literature, numerous letters from respondents, and common practice suggest otherwise. The flawed article by Randolph Byrd (Southern Medical Journal, *81:826-829), which originally prompted us to conduct our research, says "these data suggest that intercessory prayer to the Judeo-Christian God has a beneficial therapeutic effect in patients admitted to a CCU." Byrd goes on, in his acknowledgments, to write, "In addition, I thank God for responding to the many prayers made on behalf of the patients." The letter we received from a registered nurse was fairly typical: "After my experience with miracle healing, I began to use it in my work as school health nurse. I eventually would 'sense' a child's problem before being told. Things like poison ivy rash would disappear nearly overnight with prayer."*

But even more to the point are the tragic situations where parents refuse standard medical attention for their children, trusting to prayer instead. As the recent measles epidemic in Pennsylvania demonstrated, the consequences can be devastating. Unfortunately, in far too many states, parents relying solely on prayer are exempt from prosecution under child-neglect laws.

Given the very serious repercussions of an uncritical belief in the therapeutic effects of intercessory prayer, we believe that it is of paramount importance to discuss the data that do exist. Our research has demonstrated that currently there are no controlled studies that have been able to demonstrate any beneficial effects associated with intercessory prayer. We stand by our conclusion that until such studies have established a positive effect, it is highly irresponsible for anyone to make such claims.

Tipler's Omega Point

With all due and considerable respect for Martin Gardner, I must say he seems rather unfair to Frank Tipler (Winter 1991). Granted Tipler's Omega Point concept is imaginative, to say the least. Even an amateur like myself can raise some basic questions about the physics of it. These questions do not at present have definite answers, of course, but Tipler emphasizes throughout that his ideas are testable and that certain

discoveries may well be made in the near future to falsify them.

He is emphatically not setting himself up as the prophet of a new religion, à la L. Ron Hubbard. If anything, what he offers is fresh commentary on long-established faiths, especially Christianity, and it is worth noting that he first did so at a respectable conference on science and religion.

In an era when basic principles of physics, e.g., causality, are being re-examined, we still need skepticism, but we can ill afford dogmatism. Personally, I look on Tipler's notion as a sort of high-powered playfulness, not altogether unlike some that Gardner himself has indulged in occasionally to the great pleasure of his readers.

Poul Anderson
Orinda, Calif.

Martin Gardner replies:

In response to Poul Anderson's friendly letter, I gather he thinks Tipler is proposing his new religion in a spirit of fun, comparable to the entertaining resurrection motif in Philip José Farmer's Riverworld *novels. My impression, based on Tipler's papers, letters, and phone conversations, is that he is quite serious in believing his conjectures to be superior to any of the world's great faiths, or to the speculations of philosophers.*

When I concluded that Tipler's views might become, like those of L. Ron Hubbard, the basis of a new science-fiction religious cult, that was *intended as "high-powered playfulness."*

'Physics and Psychics' review

The title of Steven Hoffmaster's review of Victor Stenger's *Physics and Psychics* (Winter 1991) suggests that Stenger has a "hidden agenda." Yet the review makes clear that the author's agenda is "not-so-hidden" (p. 186).

Historically, major Western religions *have* opposed scientific inquiry persistently, sometimes murderously. All supernatural religious ideas are antithetical to scientific epistemology. That this is so inherently and currently as well as historically may account for the reviewer's failure to offer the required minimum of *one* example of a metaphysical proposition that can be examined by physics or of a process of physics that is in any way metaphysical.

Hoffmaster's failure suggests the possibility that it is he who has the hidden agenda. Perhaps some pet metaphysical nonsense of his own to defend?

Far from "counterproductive" (as the reviewer worries) in encouraging students' interest in science, it is *essential,* if science is to be learned at all, that the scientific epistemology be clearly distinguished from metaphysical and "supernatural" mental muddles. A wonderful adventure awaits those who would learn of the natural world, but can Hoffmaster interest students in science if he lacks the clarity or courage to draw the essential line between reality and make-believe?

Graham
Olympia, Wash.

I am concerned that Hoffmaster's criticism of Stenger's *Physics and Psychics* will scare people away from a very good book. Other than a little nitpicking here and there, Hoffmaster's case against the book is that the author makes clear that physics—even the "new physics"—doesn't support belief in the supernatural, including God. I fail to see this as legitimate criticism. I realize that the SKEPTICAL INQUIRER does not include religion as a paranormal target, but is that any reason to criticize a book that does? Religion may be a matter of personal faith, but to many of us, it is not any different from other superstitions. And it does incalculably more harm.

Richard F. Stratton
San Diego, Calif.

I must take issue with a point in Steven Hoffmaster's criticism of *Physics and Psychics* by Victor J. Stenger. Hoffmaster contends that the principle of Occam's Razor is compromised because of the complexity of modern physics ("Occam's Razor has a few dents in it"). It appears he does not fully understand this principle.

Occam's Razor states that of several theories that *adequately account for the facts*, the simplest is usually the best. This in no way implies that a complex theory cannot best account for the facts. Obviously, simpler physics theories did not explain experimental data adequately.

Robert O. Walker
Frederick, Md.

Inventing or discovering reality?

This letter addresses the article "Relativism in Science," by Martin Gardner (*SI*, Summer 1990), and Bruce Gregory's response (Winter 1991), accompanied by Gardner's reply.

Because I have not seen Gregory's book, I cannot defend it. I do, however, feel that *invention* is often a more satisfactory word than *discovery* when discussing science. I will try to defend this view.

Certainly, the *process* of uncovering natural laws is one of discovery. Also, I have no quarrel with Gardner's framework: The outside world exists. Some theories are better than others. And investigators in different cultures (different worlds, for that matter) will eventually arrive at the same conclusions. I will argue, nonetheless, that the word *invention* is useful here.

In the discovery process, one looks at reality. Then a model is constructed and tried out. To the extent that the model explains relations between observations and (especially) has predictive value, *discovery* is occurring, i.e., a good representation of nature has been found. Most of us would subscribe to this approximation of doing science and would apply the word *discovery*.

If that is discovery, what shall we call the model-building step? Why not "invention"? The activity is surely similar to inventing a machine that accepts observations as input and generates predictions. We should expect the scientific-model builder to rely on the same ingenuity and creative juices as other inventors.

"Invention" fits especially well during the early stages of disciplines. One can picture early "astronomers" groping for ways to think about the heavens. Imagining figures in the night sky does not advance the science much, but it does help organize the data. (It helps me locate the North Star.) In my view this is doing science, albeit rudimentary. In any case, I doubt if anybody would want to call it "discovery."

A useful example can be found in approaches to the physical properties of gases. The thermodynamics model consists of the notion of entropy and the two very powerful laws of conservation and degradation of energy. Thermodynamics is often cited as one of the most powerful generalizations of classical physics.

More recently, the same relations were derived by treating a gas as a large collection of molecules in motion. By applying statistical mechanics and classical particle physics to the molecules, "kinetic theory of gases" was born. This model was successively refined and eventually augmented by modern physics in this century. Most now prefer it as a representation of nature.

I leave it to the reader. What best describes the "thinking up" of these two models? I like "invention."

Gerald Lippey
Los Angeles, Calif.

The argument between Martin Gardner and Bruce Gregory is more semantics than substance. The use of the term *invention* in connection with natural phenomena can only be metaphorical. If a condition exists independent of humans it can be discovered but not invented; an invention is manufactured.

America was discovered, not invented.

However, Gardner's reference to pragmatism and the philosophy of John Dewey as in decline is shocking. Dewey has not always been understood, and often misunderstood, but I have never read or heard anyone who understood Dewey say that his ideas are "on the skids." Pragmatism is the scientific method applied to philosophy and the best antidote to metaphysical and paranormal beliefs. It is a made-to-order and positive philosophy for skeptics. I do not mind the hair-splitters' having their word games, but John Dewey stands for something that is too important to be trivialized by the word-smiths.

Norman L. Edwards
Newton, Mass.

Martin Gardner replies:

Who could disagree with Norman Edwards and Gerald Lippey that scientists "invent" theories? The theories of course must be tested, and if they pass enough tests they become "discoveries." Newton invented his laws of gravity. It later turned out he had discovered them. Einstein invented relativity theory. It was soon apparent he had discovered that $e = mc^2$. *If Lippey will read Gregory's book he will see why I stressed discovery as against invention.*

As to the decline of Dewey, I think Edwards is half a century behind the times. That conjectures must pass empirical tests, and that all science is fallible, is not a Deweyan proposal but one that goes back to the Greek empiricists. Dewey's distinctive contribution was much more than this. He wanted to do away with a correspondence definition of truth (that goes back to Aristotle) and substitute the defining *of truth as the passing of tests. Indeed, Dewey wanted to drop the word* truth *altogether and replace it with "warranted assertability." In proposing this he was following in the steps of William James, who in turn had misunderstood his friend and mentor Charles Peirce.*

Dewey's effort to abandon "truth" was dealt a fatal blow by Alfred Tarski's work on "semantic truth," now accepted by almost every philosopher of science. Dewey was an influential writer on ethics, politics, and education, but his influence on the philosophy of science was minimal and is now close to zero. He had nothing to say about any of the deep problems with which such philosophers are concerned, such as the nature of induction, the role of simplicity, the philosophical implications of quantum mechanics, and a raft of others.

If Edwards doubts this decline of Dewey's influence, let him make the following simple test. Check the indices of 50 randomly selected books on the philosophy of science written since 1940. He will find either no mention of Dewey, or only a few scant references compared with lengthy discussions of the views of Bertrand Russell, Karl Popper, Hans Reichenbach, Rudolf Carnap, and many others. Russell was the most implacable foe of Dewey's idiosyncratic version of pragmatism, yet no one can accuse Russell of favoring metaphysics, or of not understanding scientific method.

If pragmatism is taken in the broad sense of no more than the need for empirical testing of theories, then of course everyone is a pragmatist. But this trivializes the term in a way that ignores the heart of the revolution Dewey struggled so hard to achieve.

The unconscious exists

Regarding J. C. Corey's review of *Encounters* (*SI*, Winter 1991), it is incredible that anyone in the free-thought movement, especially a professor of psychology, would say, as he does: "The 'subconscious' mind is not a scientifically valuable or falsifiable concept. There is no proof that you or I have—or don't have—a 'subconscious.' " Those who doubt the existence of, or who deny the immense importance of, the unconscious would be equally irrational to doubt the existence of, or importance of, the conscious level of mind.

The reality of the unconscious can be proved by a most simple test: Think of the most embarrassing experience in your life. One minute ago you were not conscious of this episode. It had to be

recollected from your unconscious memory bank. Nightmares from traumatic experiences, including in childhood, are further proof. They are playbacks from indelible images stored in the unconscious.

Understanding unconscious scars that cause many mental ills by no means heals the illness, but it certainly helps individuals cope better with their neuroses and psychoses and benefit more from reconditioning therapy. It is now known that Sigmund Freud made major mistakes, and orthodox Freudianism became a cult in itself. But his emphasis on the profound importance of the unconscious will remain forever his invaluable contribution to the world. Our increasing understanding of the unconscious and the forces that condition it is one of the most important means toward mental, physical, and social health. Getting at the root causes of mental health and of mental illness, whether the causes are mental or physical, is not only important for the patient; it is also imperative in education to prevent undesirable conditioning.

Elver A. Barker
Denver, Colo.

J. R. Corey replies:

The "unconscious mind" is the major UFO of psychiatry and has no place in the science of psychology. There is no way to test for the presence or absence of an "unconscious" any more than there is a scientific way to establish the existence of an immortal soul.

Karl Popper teaches that scientific concepts and theories must be falsifiable—that is, they must be vulnerable to being shown to be false. The theory of the "unconscious" is not falsifiable.

I agree that it would be extremely valuable to understand the causes of behavioral disorders. However, free thinkers should remain skeptical about appealing to unobservable and untestable "ghosts in the machine" to explain behavioral phenomena.

Free publicity for SI?

Education and reason transform the ignorant into coparticipants in this grand adventure of life. CSICOP has done much, but remains obscure; concerned individuals should assist them toward a larger audience.

The SKEPTICAL INQUIRER's easily grasped format is a good way to put thinking skills in the mind of the public. Critical thinking may be second nature to the readers of the SKEPTICAL INQUIRER, but all too often it is a stranger to the targets of quackery, greed, and dogmatism. Preaching to the choir is a pitfall CSICOP cannot avoid without growth.

I invite the consideration of teachers, speakers, and authors toward an idea; why not give mention of the SKEPTICAL INQUIRER in classrooms, speeches, and forewords in books? Many of us have the ear of millions. A little free publicity could be of incalculable value toward an informed and happier democracy.

Reason must prosper. Reflect its light onward from this journal.

John Trim
Nashville, Tenn.

Demoralizing science teachers

. . . As a science teacher for six years, I found I could fascinate many students; yet when it came to the hard work necessary for an education, exhaustive sprints through a bunch of old tires were more attractive.

Until the powers that be (including parents and presidents) begin to pay more than lip service to education, children will be lost long before they arrive in a junior-college or even a high-school classroom.

Sure there are bad teachers, but surprisingly few. There are many Mr. and Ms. Wizards out there, too. . . .

Teacher bashing, like that in the Forum contribution by Vincent E. Safuto ("College Science Courses . . . ," Winter 1991) will not accomplish anything and never will. Demoralized

teachers like myself usually leave because they are tired of competing with Joe Montana and Spuds Mackenzie.

It should be made clear to children that education, like sports, is more hard work than anything else, although, as with sports, the rewards are worth the effort. . . .

Terry O'Connor
Cleveland, Ohio

Another disclaimer

As daily newspapers go, we're small potatoes. But we do have our standards.

With the Astro-graphs we get from a syndication service, we run this disclaimer:

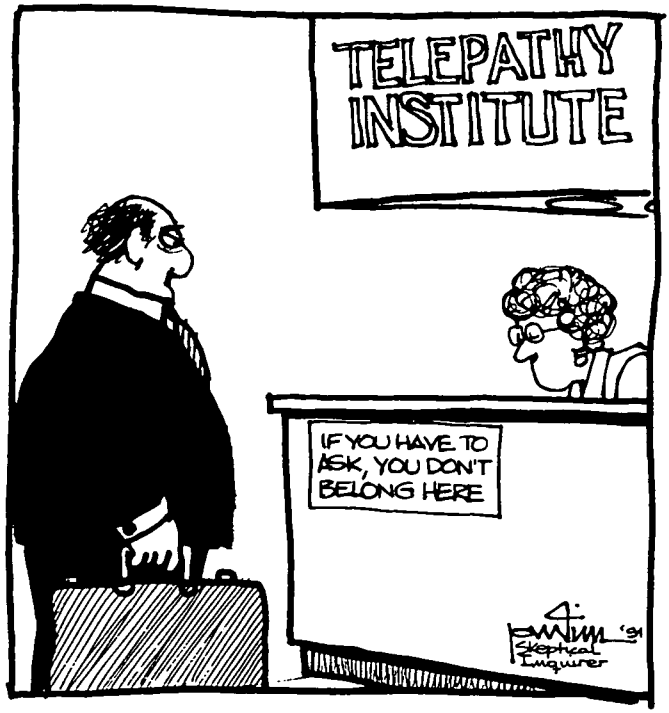
> The following feature is offered purely for entertainment purposes.

Add us to your list of those newspapers who wish we'd never run that first astrology column.

Jeannine R. Schaub
Associate Publisher
The Boone News-Republican
Boone, Iowa

The letters column is a forum for views on matters raised in previous issues. Brief letters (less than 250 words) are welcome. We reserve the right to edit longer ones. They should be typed double-spaced. Due to the volume of letters, not all can be published. Address them to Letters to the Editor, SKEPTICAL INQUIRER, 3025 Palo Alto Dr. NE, Albuquerque, NM 87111.

OUT THERE Rob Pudim



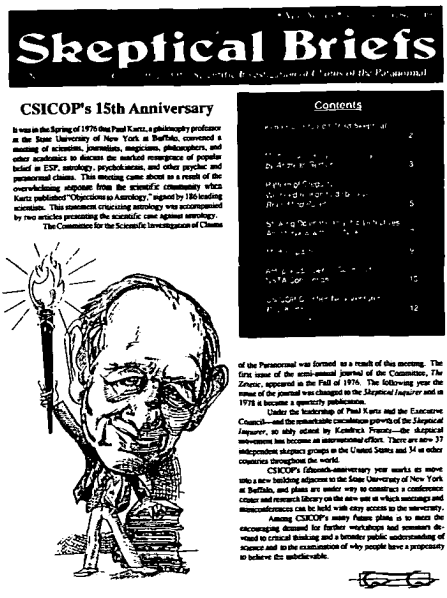
CSICOP News

Skeptical Briefs, *CSICOP Newsletter*

For several years CSICOP has distributed a quarterly newsletter, *Skeptical Briefs*, to keep interested skeptics informed of CSICOP activities and the pursuits of independent local and national skeptics organizations. *Skeptical Briefs* brings you CSICOP news and views not often published in the SKEPTICAL INQUIRER.

The *Skeptical Briefs* mailing list has grown to more than a thousand readers. In order to make it available to an even wider audience, and to help cover the rising costs of printing and postage, we are now offering it on a subscription-only basis.

The newly designed *Skeptical Briefs* has been expanded to include regular columns, such as "Inside CSICOP," "Who's Who in CSICOP?" and profiles of CSICOP's prominent personalities, together with other special features.


Skeptical Briefs

CSICOP's 15th Anniversary

Contents

Skeptical Briefs is published in February, May, August, and November. Subscription rates are: 1 year, $15.00; 2 years, $25.00; and 3 years, $30.00. (A single issue is $4.00.) To subscribe, send your check (or charge it to your VISA or MasterCard) to *Skeptical Briefs*, Box 229, Buffalo, NY 14215.

Lynda Harwood, Editor
Skeptical Briefs

European Skeptics to Meet in Amsterdam

Skepsis, the Dutch skeptics organization, will host the Third European Skeptics Conference, in Amsterdam, Friday and Saturday, October 4 and 5, 1991.

The meetings will be held in the Rembrandt Room of the Park Hotel, adjacent to the Van Gogh Museum and the Rijksmuseum. A block of rooms has been reserved for advance bookings by conference attendees.

The conference will begin at 10:00 A.M. Friday, and concluding remarks will be made on Saturday at 5:00 P.M.

The deadline for submitting papers is July 15. Proposals should be sent to Dick Zeilstra, Treasurer, Skepsis, Postbus 2657, 3500 GR Utrecht, the Netherlands.

For more information contact Dick Zeilstra at the address above; or call or write Barry Karr at the CSICOP office. ■

Local, Regional, and National Organizations

The organizations listed below have aims similar to those of CSICOP and work in cooperation with CSICOP but are independent and autonomous. They are not affiliated with CSICOP, and representatives of these organizations cannot speak on behalf of CSICOP.

UNITED STATES

ALABAMA. Alabama Skeptics, Emory Kimbrough, 3550 Watermelon Road, Apt. 29A, Northport, AL 35476 (205-759-2624).

ARIZONA. Tucson Skeptical Society (TUSKS), James McGaha, Chairman, 2509 N. Campbell Ave., Suite #16, Tucson, AZ 85719. **Phoenix Skeptics,** Michael Stackpole, Chairman, P.O. Box 62792, Phoenix, AZ 85082-2792.

CALIFORNIA. Bay Area Skeptics, Rick Moen, Secretary, 4030 Moraga, San Francisco, CA 94122-3928. **East Bay Skeptics Society,** Daniel Sabsay, President, P.O. Box 20989, Oakland, CA 94620 (415-420-0702). **Sacramento Skeptics Society,** Terry Sandbek, 3838 Watt Ave., Suite C303, Sacramento, CA 98821 (916-488-3772).

COLORADO and WYOMING. Rocky Mountain Skeptics, Béla Scheiber, President, P.O. Box 7277, Boulder, CO 80306.

DISTRICT OF COLUMBIA, DELAWARE, MARYLAND, and VIRGINIA. National Capital Area Skeptics, c/o D. W. "Chip" Denman, 8006 Valley Street, Silver Spring, MD 20910.

FLORIDA. Tampa Bay Skeptics, Gary Posner, 6219 Palma Blvd., #210, St. Petersburg, FL 33715 (813-867-3533).

GEORGIA. Georgia Skeptics, Correspondence Secretary, P.O. Box 654, Norcross, GA 30091.

ILLINOIS. Midwest Committee for Rational Inquiry, Lawrence Kitsch, President, P.O. Box 2792, Des Plaines, IL 60017-2792.

INDIANA. Indiana Skeptics, Robert Craig, Chairperson, 5401 Hedgerow Drive, Indianapolis, IN 46226.

KENTUCKY. Kentucky Assn. of Science Educators and Skeptics (KASES), Chairman, Prof. Robert A. Baker, 3495 Castleton Way North, Lexington, KY 40502.

LOUISIANA. Baton Rouge Proponents of Rational Inquiry and Scientific Methods (BR-PRISM), Henry Murry, Chairman, P.O. Box 15594, Baton Rouge, LA 70895.

MASSACHUSETTS. Skeptical Inquirers of New England, Laurence Moss, Chairman, c/o Ho & Moss, Attorneys, 72 Kneeland St., Boston, MA 02111.

MICHIGAN. MSU Proponents of Rational Inquiry and the Scientific Method (PRISM), Dave Marks, 221 Agriculture Hall, Michigan State Univ., East Lansing, MI 48824. **Great Lakes Skeptics,** Carol Lynn, contact, 1264 Bedford Rd., Grosse Pointe Park, MI 84230.

MINNESOTA. Minnesota Skeptics, Robert W. McCoy, 549 Turnpike Rd., Golden Valley, MN 55416. **St. Kloud ESP Teaching Investigation Committee** (SKEPTIC), Jerry Mertens, Coordinator, Psychology Dept., St. Cloud State Univ., St. Cloud, MN 56301.

MISSOURI. Kansas City Committee for Skeptical Inquiry, Verle Muhrer, Chairman, 2658 East 7th, Kansas City, MO 64124. **Gateway Skeptics,** Chairperson, Steve Best, 6943 Amherst Ave., University City, MO 63130.

NEW MEXICO. New Mexicans for Science & Reason, John Geohegan, Chairman, 450 Montclaire SE, Albuquerque, NM 87108; John Smallwood, 320 Artist Road, Santa Fe, NM 87501 (505-988-2800).

NEW YORK. Finger Lakes Association for Critical Thought, Ken McCarthy, 107 Williams St., Groton, NY 13073. **New York Area Skeptics** (NYASk), William Wade, contact person, 97 Fort Hill Road, Huntington, NY 11743-2205. **Western New York Skeptics,** Tim Madigan, Chairman, 3159 Bailey Ave., Buffalo, NY 14215.

NORTH CAROLINA. N.C. Skeptics, Michael J. Marshall, Pres., 3318 Colony Dr., Jamestown, NC 27282.

OHIO. South Shore Skeptics, Page Stephens, 6006 Fir Avenue, Cleveland OH 44102 (216-631-5987).

PENNSYLVANIA. Paranormal Investigating Committee of Pittsburgh (PICP), Richard Busch, Chairman, 5841 Morrowfield Ave., #302, Pittsburgh, PA 15217 (412-521-2334). **Delaware Valley Skeptics,** Brian Siano, Secretary, Apt. 1-F, 4406 Walnut St., Philadelphia, PA 19104.

SOUTH CAROLINA. South Carolina Committee to Investigate Paranormal Claims, John Safko, 3010 Amherst Ave., Columbia, SC 29205.

TENNESSEE. Tennessee Valley Skeptics, Daniel O'Ryan, Secretary, P.O. Box 50291, Knoxville, TN 37950.

TEXAS. Austin Society to Oppose Pseudoscience (ASTOP), Lawrence Cranberg, President, P.O. Box 3446, Austin, TX 78764. **Houston Association for Scientific Thinking** (HAST), Darrell Kachilla, P.O. Box 541314, Houston, TX 77254. **North**

(continued on next page)

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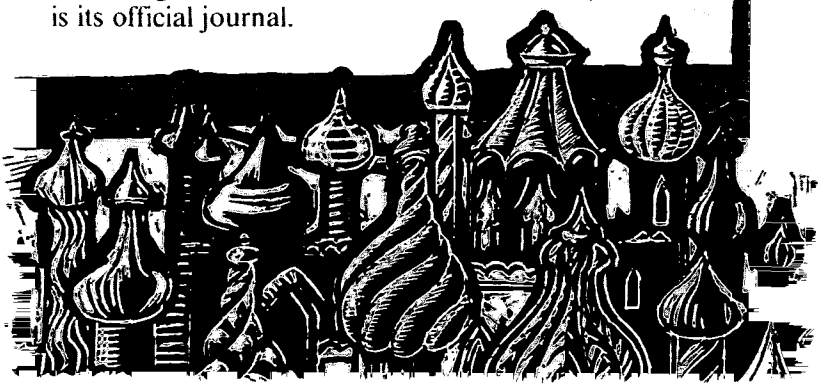
- Maintains a network of people interested in critically examining claims of the paranormal.
- Prepares bibliographies of published materials that carefully examine such claims.
- Encourages and commissions research by objective and impartial inquiry in areas where it is needed.
- Convenes conferences and meetings.
- Publishes articles, monographs, and books that examine claims of the paranormal.
- Does not reject claims on a priori grounds, antecedent to inquiry, but rather examines them objectively and carefully.

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